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BULLETIN OF THE

TAYLOR SOCIETY

**AN INTERNATIONAL SOCIETY TO PROMOTE THE SCIENCE
AND THE ART OF ADMINISTRATION AND OF MANAGEMENT**

Proceedings of Special April Meeting

**First Publication of Productive
Overcapacity Charts**

Cost Accounting for Public Utilities

**All of this material has an important bearing
on the pressing economic problems of the day**

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29 W. Thirty-Ninth St.
New York

JUNE, 1932 VOL. XVII, NO. 3

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The objects of this Society are, through research, discussion, publication and other appropriate means:

1. To secure—for the common benefit of the community, the worker, the manager and the employer—understanding and intelligent direction of the principles of administration and management which govern organized effort for accomplishing industrial and other social purposes.

2. To secure the gradual elimination of unnecessary effort and of unduly burdensome toil in the accomplishment of the work of the world.

3. To promote the scientific study and teaching of the principles governing organized effort, and of the mechanisms of their adaptations and application under varying and changing conditions.

4. To promote general recognition of the fact that the evaluation and application of these principles and mechanisms are the mutual concern of the community, the worker, the manager and the employer.

5. To inspire in labor, manager and employer a constant adherence to the highest ethical conception of their individual and collective responsibility.

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Contents

Comment 93
Industrial Overcapacity 94
By Robert F. Martin
Round-Table Conference on Cost Accounting
Introduction 100
By H. S. Person
Cost Accounting as a Tool of Management 102
By D. R. Anderson
Cost Accounting Methods Developed by Frederick W. Taylor and His Associates 103
By King Hathaway
The Applicability of Industrial Cost-Accounting Practices to the Electrical Utility Field 108
By John H. Williams
Discussion by Morris Llewellyn Cooke, Malcolm F. Orton, D. R. Anderson, John H. Williams, King Hathaway, Judson C. Dickerman, Judson King and John Maurice Clark
Avoidance of Depression
Stabilization through Fiscal Policy . . 113
By Virgil Jordan
Stabilization through Money and Credit Policy 120
By William T. Foster
Stabilization through Regulation of Investment 121
By H. S. Person
Discussion by Eleanor Lansing Dulles, David Cushman Coyle, Paul Gourrich and Royal Meeker
News Notes 133
Necrology 134
Reviews 134
Books Received 136

Comment

THE BEST time for a householder to have repairs made to his home is when he is unemployed, for then he is free to supervise and help in the work. But at such a time he hesitates to incur the expense. He must keep his funds intact to meet the uncertain future.

INDUSTRIAL concerns have the same problem. The time for improvement of equipment and methods is when orders are slack. But then is the time when they dare not make the investment. They also must keep their assets liquid, for not only do they face the burden of a continuing overhead, but most of them have credit obligations which may press for settlement.

THAT IS the reason why the profession of industrial engineering, with the exception of specialists in office management, is feeling the full force of depression. Depression appears to stimulate improvement in office organization and procedures. When it appears management makes obviously practicable cuts promptly and ruthlessly; and then because the immediate interest is reduction of expense, directs its attention toward additional economy through betterment of methods. This is the case in a sufficient number of organizations to keep the competent office specialists fairly busy. But there is no such stimulus to betterment of production methods, for that is looked upon as an investment for future rather than immediate reduction of expense.

THERE IS danger in indifference toward betterment of plant, equipment and operating methods. Some concerns which give half-hearted attention to this matter become the victim of "engineers" with ready-made systems or cheap-because-quickly-done reorganization plans. There are instances also in which recent business-school graduates are employed at beginners' salaries with roving commissions to "see what improvements they can suggest," although there is probably less permanent danger from these than from the quack professional. Especially is there danger in expecting when activity is resumed to meet competition satisfactorily with an organization, facilities and methods which are deteriorated leftovers from 1929. Now is the time to make the necesary economic, organization and method studies and be ready for the more exacting era ahead.

Industrial Overcapacity

A Graphic Analysis of Current Plant Facilities in the United States

By **ROBERT F. MARTIN**

Senior Economic Analyst, United States Bureau of Foreign and Domestic Commerce, Washington,

WE ARE pleased to present the following data concerning the relation between production capacity and actual production in American industry. We are indebted to the United States Bureau of Foreign and Domestic Commerce for permission to reproduce the charts, and to Mr. Robert F. Martin of that Bureau for the explanation. These data are of significance, for at the present time there are many discussions of causes of the depression which hold as a major premise the existence of overinvestment and overcapacity. This premise has generally been an empirical generalization; now we have in these official data a substantial factual basis for it. We are grateful for the privilege of making it available. (Editor).

FOR the important segments of industry covered, the accompanying charts show consistently for a number of years a physical capacity to produce (on a normal-shift operating basis) that has greatly exceeded actual output performance. While severely affected by the present industrial depression, this excessive capacity has in most cases existed in important proportions during the preceding period of prosperity.

There are many valuable estimates of capacity as related to production at a given time for numerous other industries, based on surveys and special studies. The purpose of this paper, however, is to present in convenient form some of the best data available on a current basis.

No wholly satisfactory general definition for normal capacity has yet been devised, and the methods of estimating this basis for comparison have varied widely as between sections of the same industry. For this reason it is necessary to a reasonable judgment of the significance of each statistical series here portrayed that the basis of capacity estimation in each case be taken into account.

With some exceptions, as will be noted, actual production has here been related to the estimated normal output that could have been expected if existing plant facilities had been utilized regularly on a full normal-shift basis. For convenience the single-shift basis is used in many cases when actually most of the equipment is planned to run normally on a more extended schedule. This tends unduly to minimize the idleness indicated by the data as related to planned normal operation.

For the iron and steel industry the data are mostly on the normal-shift production basis. The textile estimates attempt to show the actual utilization of equipment from the standpoint of time as compared with a "normal" activity. The paper industry data for the most part relate actual output to an estimated "practical" production, while the miscellaneous group uses widely varying bases of calculation.

In the iron and steel industry group, some part of the pig iron furnaces shown as idle in the first chart were inactive for usual reasons of production, such as relining. These data, therefore, are given simply to show the existence over a period of years of the situation more accurately portrayed, from the excess capacity point of view, in the pig-iron production chart at the right. The data for this chart were not available prior to 1928. Capacity in this instance is estimated annually by the American Iron and Steel Institute.

Malleable iron castings capacity prior to 1928 was based upon the total number of units of molding floor space times the average production per molder per day per unit of floor space, times the number of actual working days per month. In no case was production capacity based on floor space calculated in excess of melting or annealing capacity. Beginning in 1928, capacity was taken for each plant as equal to its best average production in any six consecutive months since January, 1919.

Output of fabricated steel plate has been related to new orders rather than production, which accounts for the more pronounced month-to-month fluctuations. The same characteristic is apparent in the case of fabricated structural steel; the ratio of shipments to capacity shows a distinct seasonal movement, but not so important month-to-month fluctuations as is the case with new orders.

The definition of capacity as estimated by the fabricated steel-plate industry is the tonnage which could be produced working on a single shift on the class of contracts usually secured. The estimates for steel ingots productive capacity are made in annual surveys by the American Iron and Steel Institute.

Average monthly shipments for the best six consecutive months since January, 1919, have been taken as capacity production for commercial steel castings.

Periodic surveys by the National Association of Flat Rolled Steel Manufacturers determine the capacity for steel-sheet production. An increase of rated capacities by about 11 per cent in September, 1927, affects the comparability of the data during the period about that date.

Productive capacity for steel barrels has been based on the daily number of fifty-five-, thirty- and fifteen-gallon standard light barrels made of twenty-gauge or heavier steel and fifty-five-gallon Interstate Commerce Commission 5B barrels, in normal proportion, which can be produced with existing equipment in whichever shift is run—an eight-, nine- or ten-hour shift.

An annual survey by the Census fixes the estimates for fabricated structural steel capacity on the basis of annual tonnage that could be produced if the plants were running full time, single shift, on the character and class of work usually secured.

The data for the textile industry are almost entirely on the basis of actual machinery activity performance in relation to estimated normal full-time operation. This approaches the capacity question from the angle of direct-time measurement of equipment utilization, rather than from the standpoint of output.

In the case of cotton-spindle activity, spindles active at any time during the month have been counted, though some have not been normally active during the whole month. The picture presented is therefore of actual idle equipment. There is a statistical series available for cotton-spindle activity in relation to single-shift operation, but this is of less value from the overcapacity viewpoint as some sections of this industry normally plan to operate more than one shift per twenty-four-hour day.

In the woolen section of the industry normal time has been taken as single-shift operation, which is in some cases considerably less than planned operation and hence causes the data to understate the idleness in relation to full-time capacity operation. Normal time in silk manufacture is considered as equal to the estimated usual time operated by each plant.

In the paper industry, the data for all sections except that of paper-board shipping boxes relate to production as compared with normal or "practical production" capacity. The basis for estimating this varies as between the items presented.

Normal capacities in the cases of newsprint, book paper and wrapping paper are based upon the actual average daily machine output during the best three-month period within the last five years. Production during the best three months may not, however, have been at full capacity from the viewpoint of possible output without overtaxing facilities.

The estimate for box-board capacity is the tonnage that could be produced if machines operated twenty-four hours per day for a five- or six-day week.

In the miscellaneous group, capacity operation for petroleum refineries is based on possible twenty-four-hour per day production for normal working days; in the case of wheat flour, it is also figured on twenty-four-hour per day operation for normal working days.

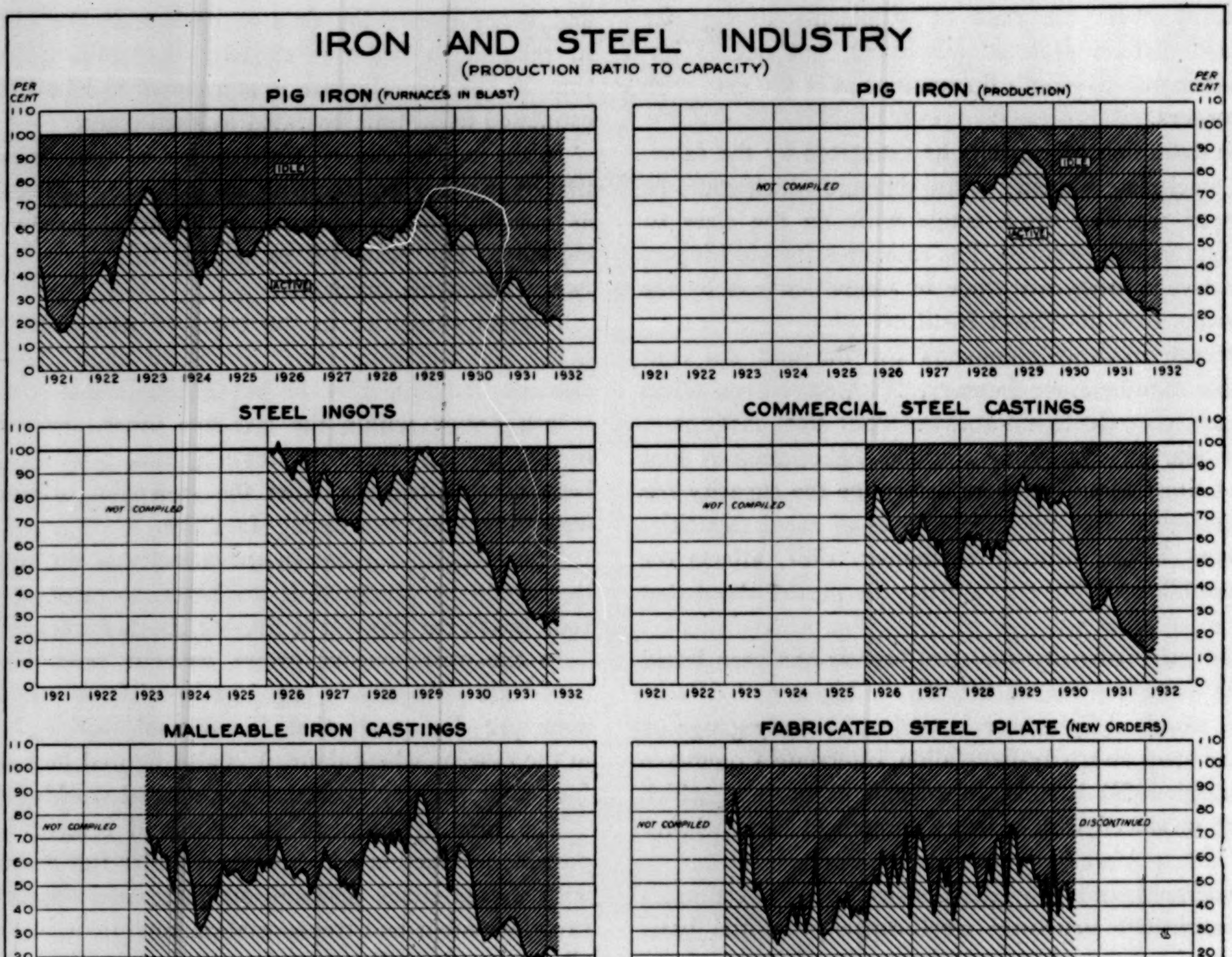
The capacity estimate for Portland cement is the possible production for each plant under full operation, with a continuous demand, adequate fuel supply and favorable labor and transportation conditions, with due allowance for ordinary and usual interruptions.

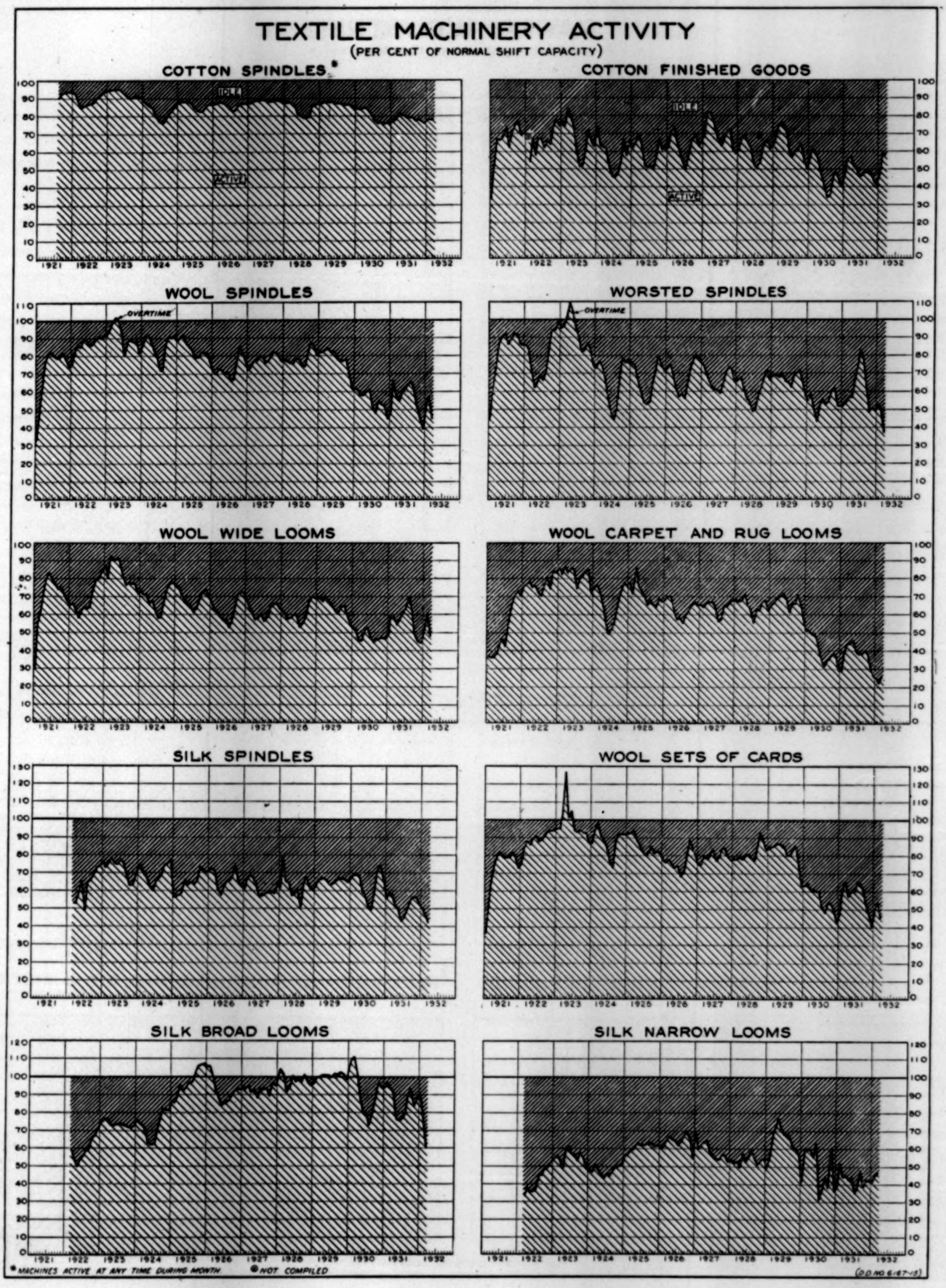
Furniture operations capacity for the Grand Rapids district has been taken as normal full-time, single-shift operation of the machine rooms, to which actual time operated has been compared.

Productive capacity for glass containers includes that of all furnaces and all equipment suitable for operation in normal shifts for usual working days in the month. That for illuminating glassware is the number of turns that could normally be run with existing equipment.

For the fresh-water pearl-button industry, the capacity estimate is based on the number of automatic machines in running order, to which the number in operation each week is compared. Shipments rather than production have been used as a basis of comparison in estimating normal capacity for each plant in the case of porcelain enameled flatware.

While the basis of estimation has varied rather widely, and the data are not strictly comparable, there is indicated a general situation of overcapacity that challenges attention and further study.


IRON AND STEEL INDUSTRY
(PRODUCTION RATIO TO CAPACITY)



TEXTILE MACHINERY ACTIVITY

(PER CENT OF NORMAL SHIFT CAPACITY)

COTTON SPINDLES*

COTTON FINISHED GOODS

WOOL SPINDLES

WORSTED SPINDLES

WOOL WIDE LOOMS

WOOL CARPET AND RUG LOOMS

SILK SPINDLES

WOOL SETS OF CARDS

SILK BROAD LOOMS

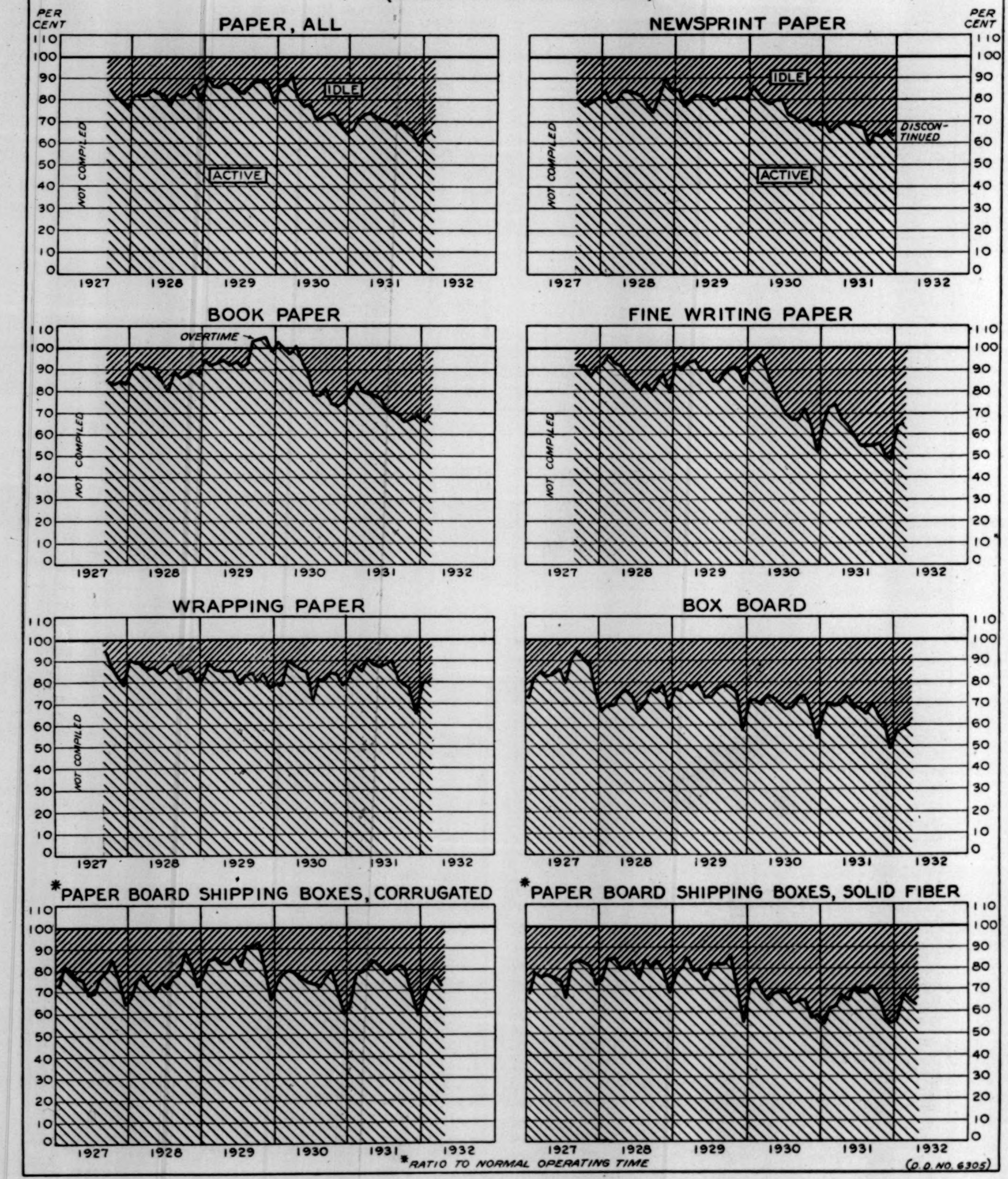
SILK NARROW LOOMS

* MACHINES ACTIVE AT ANY TIME DURING MONTH ● NOT COMPILED

(D.D. NO 6/67-15)

PAPER INDUSTRY

(PRODUCTION RATIO TO CAPACITY)



PAPER, ALL

NEWSPRINT PAPER

BOOK PAPER

FINE WRITING PAPER

WRAPPING PAPER

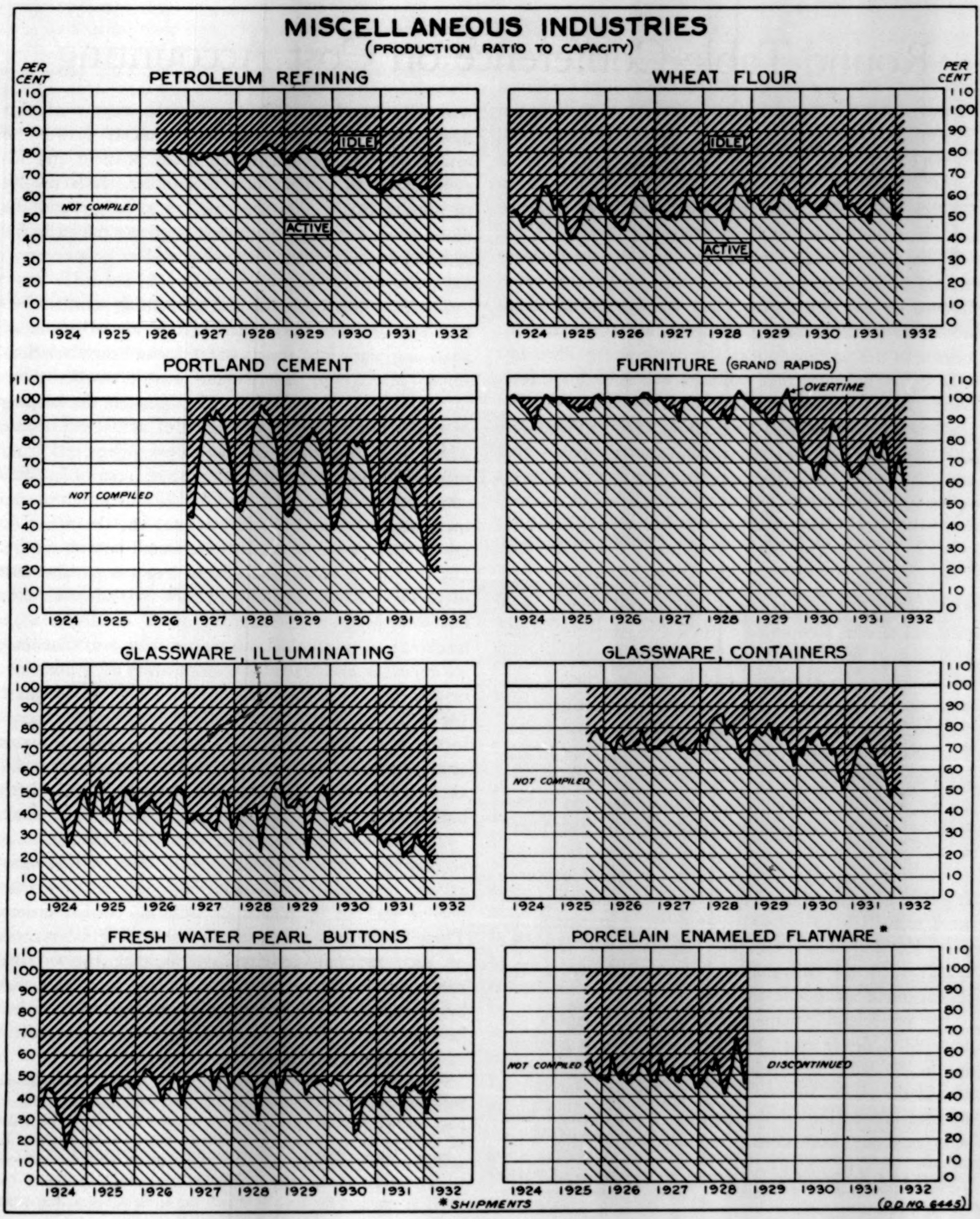
BOX BOARD

*PAPER BOARD SHIPPING BOXES, CORRUGATED

*PAPER BOARD SHIPPING BOXES, SOLID FIBER

*RATIO TO NORMAL OPERATING TIME

(O.D. NO. 6305)



MISCELLANEOUS INDUSTRIES
(PRODUCTION RATIO TO CAPACITY)

PETROLEUM REFINING — WHEAT FLOUR — PORTLAND CEMENT — FURNITURE (GRAND RAPIDS) — GLASSWARE, ILLUMINATING — GLASSWARE, CONTAINERS — FRESH WATER PEARL BUTTONS — PORCELAIN ENAMELED FLATWARE *

* SHIPMENTS

(O.D. NO. 6445)

Round-Table Conference on Cost Accounting[1]

Introduction

By H. S. PERSON
Managing Director, Taylor Society, New York

THERE ARE times when one questions why one is requested to render a particular service. That was not the case when the Taylor Society was invited to organize and conduct this round-table conference on cost accounting. But we did wonder how we could with becoming modesty make the reason known to the participants in the conference. Then by a happy coincidence that problem was solved. A few weeks ago there crossed my desk an issue of the *Bulletin* of the National Association of Cost Accountants containing a sentence which, quoted, makes the explanation for us. The sentence reads as follows:

> The (development stage of cost accounting) was spread over a long period of years, and may be said to have started with the announcement of the principles of scientific management by the late Dr. Taylor.

The program of this conference provides for three brief formal statements concerning the nature and methods of cost accounting as an aid to executive work in industry; one brief formal statement concerning its usefulness as an executive tool in public utilities, and then open discussion. In particular, a statement by the chairman will indicate what scientific management has brought to cost accounting as developed in industry; a statement by D. R. Anderson, Comptroller of the Kendall Company, will indicate how an industrial executive uses cost accounting as an instrument of managerial control; a statement by King Hathaway, Consulting Engineer, will refresh our minds concerning the basic elements of modern cost accounting; and as a transition to general discussion, a statement by John H. Williams, Consulting Engineer, will raise the question of its desirability and applicability in the management of public utilities.

In pre-scientific-management days managers attempted to figure costs, but there was no cost accounting in the sense in which industry is now accustomed to use the term. Frederick W. Taylor was the father of cost accounting of the modern type. Yet to him, who was not professionally an accountant, this work was only an element in—a natural outcome of—his development of a system of management. It was the system of management which made possible and inevitably led to modern cost accounting. It is my lot to present briefly this morning, as a background for more detailed discussions to follow, those things in his system of management that make modern cost accounting possible.

The first new basis for cost accounting which scientific management has contributed is its technique of analyzing work into functional units and their relationships. Managerial records and control are in terms of operating units, and this makes possible the keeping of cost records in terms of units of actual experience which mean something definite to executives and foremen. For instance, the *total* cost of repairs in 1929 compared with the *total* cost in 1928 may indicate an increasing cost, and possibly waste, but the *totals* do not tell where the waste is to be found and its nature. On the other hand, analysis of records of the cost of repairs on *each* machine on *each* type of work does tell something—a bad and wasteful condition of a machine; an unsuitable and wasteful type of machine; an improper and wasteful manipulation of a machine; or a wasteful use of a machine on a type of operation for which it is not suited. This keeping of records in terms of units of activity makes possible for cost accounting a rational analysis of direct expense, useable as a tool of management, and an analysis and distribution of overhead both to function and to product.

The second contribution of scientific management to accounting, related of course to the first, is that operations are planned and conducted by means of written documents, not by means of arbitrary verbal orders. These documents automatically make original records of each unit of activity, and become the original records of cost accounting. Let me read from an article by Henry P. Kendall, written twenty years ago when he was doing pioneer work in scientific management at the Plimpton Press:

> For instance, a ticket made up in the central planning department when combined with the instruction card, serves to plan the work in advance; then it is used to control the order of work by being placed on a bulletin board; then it gives the workman his particular piece of work to do with its instructions how to do it. On this ticket (commonly called a job card) is stamped the time at which the work is begun and when

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[1] Part of a Round-Table Conference on Regulation of Public Utilities arranged by a committee, Hotel Pennsylvania, New York, April 8-9, 1932.

it ends. This same ticket then serves to check off the progress of the work on the route-sheet. Then it goes to the accounting department from which the man's pay is made up. It is then redistributed and furnishes the labor cost of the particular operation on the cost-sheet of the job. From cost-sheets similar to this are summarized not only the costs on all jobs, but department expenses and charges which appear in each four-week period statement.

Materials are apportioned and moved to workplaces and jobs by similar written orders. Accounting from such original operating documents eliminates the cost of duplication of records and practically eliminates errors. This brings cost accounting into such intimate relations with operations that Taylor moved the cost-accounting work from the general accounting office into the shop planning room.

Third, this intimate relation with operations established by the fact that the same documents in a continuous flow serve both operating conrol and accounting, permits the cost accounts to be routined and simultaneous with the events they record and analyze. Noon of today can see all the cost of yesterday cast up. Errors and wastes are promptly discovered in time for something to be done about them. Cost accounting information flows in a steady stream out of operations and becomes a tool of dynamic management. Except on special occasions for special purposes, post-mortems cease to be the rule.

Fourth, when for special purposes post-mortems are desirable, they can be made promptly and with accuracy, because they can be made from original unit operating data. Given original data in terms of component units of operating activity, identifying the operation, the machine, the operative, the time consumed, the wage rate, the machine rate, the materials, their costs, the class of product, even the order being processed, then the possible combinations make any kind of special summary, analysis, comparison or report practicable long after the events have occurred. If the original data were transferred to Hollerith or Powers cards, then from these cards at any time a great variety of valid special information can be extracted. And it will not be estimated information; it will be just as accurate and valid as if procured on the day the operations occurred. Daily, weekly, monthly and other analyses can be made. The standard scientific-management cost report is for four-week periods; for forty years ago, before simplification of the calendar became a movement, Taylor made four-week periods the standard interval for cost analyses and reports.

Fifth and finally, although scientific management removed cost keeping from the general accounting offices to the planning room, it more than compensated by interlocking cost accounting into general accounting. So far as we know, prior to scientific management this interlocking was not practiced. Today, however, as a consequence of the promptness with which costs are derived and expenses accurately related to men, workplaces, operations, jobs and materials, changes in inventory values, accrued unpaid wages and other essential information find their places promptly—daily, if it is desirable—in the books of general account, and in the balance sheet and income-expense statements.

These are the contributions of scientific management, as a managerial technique, which have made the cost accounting of today possible.

It should be understood that we are concerned with actual costs (some call them circumstantial costs), the costs that are currently recorded as they are incurred and in terms of the things actually done to incur them. It is costs of this kind that reveal developing situations and permit executive action in time to correct the situation if it is developing in an unfavorable manner. We are not concerned with special analyses of past situations which, because all the necessary data were not then put on record and in suitable terms, are but post-mortem estimates of past situations. We are interested in current costs as a dependable tool of management.

Actual, or circumstantial, costs are of service to executives in two principal ways:

First, in the form of functional costs, or costs classified and summarized in terms of activities performed. Variations in such costs reflect variations in the manner in which things are done, and disclose inefficiency and waste. This gives a cost basis for executive supervision, appraisal and improvement of methods. For this particular purpose it is not necessary to have an allocation of the costs to particular products or services rendered. If I keep a record and make comparisons of the cost per page of typing manuscripts in my office, I can determine whether efficiency is improving or deteriorating without ever ascertaining what the cost of typing a particular manuscript may be. Functional costs furnish data for current executive supervision and direction.

Second, in the form of product or service costs—costs allocated to the various products or services. Such costs furnish data which serve as a basis for price determinations. They enable one as executive to determine whether he can afford to make a commodity of which the price is determined by forces in a competitive market; what profits or losses one is realizing on various items of his line; and what prices one may, should or must, for various reasons of policy, put on commodities and services in which there is no competition.

Product or service costs have a larger importance than that, however. They are important to planning the future development of an enterprise. They constitute part of the basis of wise executive judgment relative to the future natural development of properties, activities and relations in a changing social environment. For instance, it may be wise—it is the practice—for a merchant to offer butter and eggs at a price which just clears costs, in order to establish goodwill through low prices for homely household items which touch the mass of consumers. This leads to purchases of other items on which there are compensating profits. There are other industries in which a similar policy might be wise. Commodities and services are frequently not just things in themselves but parts of a group of related things. Product and service costs are essential if we desire every aid to wise decisions relating to development policy.

One last word on the importance of routine cost accounting. Some enterprises keep crude, casual, incomplete data for costing, and then in time of need estimate costs for some past period or activity. Such cost analyses are always questionable and open to attack. They do not convince. If, as the result of a fire in my home, I were to make a settlement with an insurance company tomorrow, I should consider myself on much firmer ground if I could show the adjuster original current records of every purchase and cost of the things which had been destroyed—records obviously made at the time and without ulterior motives. If I should have to estimate them indirectly from other records, I should feel at a disadvantage. Similarly, if I were a utility attempting to establish justification for a proposed capitalization or rate—but I have already exhausted my allowance of time, and to pursue that thought further would be a trespass on later speakers and on your discussion.

Let us therefore proceed to more detailed consideration of cost accounting, especially with reference to the application of that modern and effective type developed by scientific management, to a field of enterprise of major importance to the public and to those who have invested in it.

Cost Accounting as a Tool of Management

By D. R. ANDERSON
Comptroller, The Kendall Company, Boston

COSTS are useful to management in three ways:

1. They make possible the intelligent planning of operations. The immediate object of all business is profit, which is the difference between what we get for a product and what it costs. In planning our operations we must therefore know (1) what we expect to sell; (2) how much we expect to get for what we sell, and (3) what we expect the cost will be.

Cost estimates for this purpose are as old as business itself. They have been for the most part crude, rule-of-thumb estimates, but they are nevertheless the true ancestors of the modern, predetermined or standard product costs. The difference is that today estimates are prepared much more carefully and scientifically.

The basis of the modern standard product cost is the specification sheet, which is merely a detail of the quantities and cost of each material, of the hours and wage rates of each labor operation and other items of expense required to manufacture the product. Standards are developed by careful study of each operation to determine the proper amount of material waste, labor hours, etc., that go to make up the total cost of the product. When this total cost is arrived at, the management assumes responsibility for delivering the product at that cost.

The sales management can use that figure as a basis for sales and operating plans. Briefly, they will add to the predetermined factory cost, the estimated expense of selling and administration, plus the desired profit. The result is the desirable selling price. Whether or not it proves possible to get the desired selling price is another matter. If another price is accepted, however, it is done knowingly, as a deliberate policy or plan, and with the expectation that the forfeited profit will be compensated for in another way.

2. Costs enable management to judge whether or not operations have yielded the planned profit. Without them profit or loss can only be determined by making a physical inventory of materials and product owned. This is a laborious process which is ordinarily possible only once or twice a year. When it is done no indication is given of the causes of profits or losses. By means of proper cost records we can follow the course of material, labor and product through the processes of manufacture, knowing all the time what we have in our inventories and what the product shipped in any

given period costs us. The monthly profit and loss statement is now acknowledged a necessity to the proper conduct of business.

3. Costs insure the planned profit on operations by controlling expenses at the source. Historical costs, even though speeded up, are not adequate to the close control requirements of management. By setting standards for each labor operation and for the expenses of each department, and reporting promptly any variations from these standards, loss can be checked at the source and profits "insured."

I have brought with me a number of forms illustrating these various points and shall be glad to use them to amplify points brought out in the discussion.

Cost-Accounting Methods Developed by Frederick W. Taylor and His Associates

By KING HATHAWAY
Consulting Engineer, New York

THE PART assigned to me in this conference is to describe the accounting methods forming an essential part of the mechanism and technique of scientific management as evolved by Frederick W. Taylor and those associated with him. These methods are the basis of all modern industrial accounting.

Cost finding and analysis, both with respect to functions or activities, various classes of product or service, logical classification and measurement of performance are integral parts of this system of accounting. One of the distinguishing features of the Taylor accounting methods is that they are designed, while serving the purposes of accounting for money, to serve as a tool of management in the economical and efficient operation of a business. They place in the hands of management facts with respect to cost of operation, cost of products, revenue and profit from various classes of sales. These facts which are set up as a matter of routine, rather than as a result of special or spasmodic investigation and compilation, are so presented as to focus attention upon necessity or opportunity for effecting economies, upon unprofitable products and upon opportunities to increase profitable sales. Another distinguishing feature is that accounting having to do with costs of products, operation and capital expenditures is so articulated and co-ordinated with the planning and control of work that costs which balance out in the general books result largely as a by-product with a minimum of expense in obtaining them.

These methods I believe might, with great benefit to management, the regulating bodies and consumers, be adapted and applied in the utility field. A study of the literature of utility classification and accounting indicates a trend in this direction. Progress might, however, be accelerated and a better job done if those interested in improved classification and accounting for utilities were to become thoroughly acquainted with the methods which I shall briefly outline.

Essentials of an Accounting System

An accounting system as developed under scientific management produces from original records, such as vouchers, time cards and material requisitions, with a minimum of labor and in the most readily useable form, the following information essential to good management:

1. *An analytical statement of expenses* setting up under a limited number of major accounts those expenses variously termed, "overhead," "indirect," "general" or "burden." These are the expenses which it is either impractical or inadvisable to attempt to charge directly as incurred to the costs of various products. They are made up of such things as administration, supervision, taxes, general supplies, maintenance, insurance, etc., etc. The grouping is on departmental or functional lines. The major accounts or groupings are supported by such sub-groups and details as may be desirable and useful. The monthly report is so set up that the major executives are not confronted with a bewildering mass of detail but details are readily available to them and to executives further down the line as needed. This statement provides not only the expenses for the current period but, for purposes of comparison, figures for previous periods, as for example, last month, average (or total) for year to date and for the same periods last year. As a measure of performance, they also show for each class or item of expense the established standard or budget figure *based upon the volume of business or rate of operation* for the period in question. Figures are so arranged that each function or department is charged only with those expenses belonging to it and over which it has control. Responsibility is thereby clearly placed and defined. Figures may be shown in terms of appropriate unit cost as well as in total dollars.

Another section of this statement shows the direct wages and material cost charged against each class[2] of product during the period. Another section presents figures showing the direct-wages and material-cost charges for new equipment and other capital expenditures. This statement backed up by original documents covers all expenditures and expenses and balances out with payrolls and other primary accounts concerned. It may in turn serve as an original document in making lump-sum debits and credits to various general-ledger or control accounts.

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[2] In the case of utilities read "class of service" or "class of customer."

2. *A statement showing in such detail as may be desirable or useful the complete or final manufacturing cost of each class, lot or item of product turned out during the period.* Complete or final manufacturing cost would include not only the costs directly chargeable to product but a proper proportion of each class of indirect expenses. Farther on I shall discuss methods of allocating or distributing indirect expenses to various classes of product. This statement would provide for comparison of current costs with previous and standard costs. It serves as an original document for debits and credits to such controlling or general-ledger accounts as "work in process" and "finished-product stores," and furnishes the basis for charges to merchandise or product sales.

3. *An inventory analysis* showing values of each class and important subdivisions of purchased materials, of work in process and of manufactured products on hand. These are supporting figures for totals shown on the general balance sheet. This statement should show for each class or subdivision net change from previous periods, normal rate of use, standard or budget-inventory figures for the existing rate of operation, etc. It should also segregate inactive or obsolete items in a separate supplement. This statement is backed up by current original records in the nature of detailed cost sheets, "balance-of-stores" or stock-ledger sheets and equipment-inventory sheets.

4. *An income or profit and loss statement* showing the revenue from sales, complete cost of the product sold and the net profit or loss for each period. These would be shown not only for the business as a whole, but for each class of product or important subdivision thereof. The figures for classes of product should be regularly backed up by such detail as may be useful and it should be possible readily to draw off further analyses so that when desired the profit or loss on individual items of product sold may be ascertained. This statement should provide the information cited for the current period, for the year to date and for previous comparable periods. It may also show quotas or standard sales projected for each class. It serves as the original document or voucher for credits to general-ledger accounts for manufactured product, debit to merchandise sales, and credit or debit to profit or loss. Books of original entry such as registers of accounts receivable (sales registers) are so designed that the information is automatically compiled and may be directly posted therefrom to the statement.

As I have described it, this statement is an analysis of sales by products. The system should be so devised that from the same documents used in its compilation supplementary analyses may readily be drawn off by classes of customers and sales territories.

Costs of Products

The cost of a product is made up of:

1. *Direct charges.*

a. *Wages* of workmen who perform the various operations upon it. The cost for these is compiled from job-time cards and posted to cost sheets.

b. *Materials* used. These are reported on "stores-issue" requisitions from which the cost is compiled and posted to cost sheets.

2. *Manufacturing indirect expenses.* These consist of all operating expenses not directly chargeable to the cost of any given item of product. This group includes such things as supervision, power, maintenance, taxes on plant, insurance, etc. These are compiled from job-time cards, stores-issue requisitions, accounts-payable vouchers and journal vouchers.

3. *General business or administrative expenses.*

4. *Sales expenses.*

The two latter classes of expense are compiled from original documents in the same manner as indirect manufacturing expense. Manufacturing indirect expenses are distributed or allocated and added to the cost of various products worked upon during each accounting period, in order to obtain a complete manufactured-product cost or inventory value.

Administration or general business expense and selling expense are apportioned and added to the manufacturing cost of products when sold.

The value of such a system of accounting depends upon two things:

First: *a classification* for the business of its accounts, expenses, activities, products and properties. The classification must be designed not only with a view to facilitating the work of accounting, that is, accumulating and setting up figures representing expenses, costs of product, revenue, etc., but—and this is more important—it must be so designed as to make these figures of the greatest usefulness to management. The Taylor method of classification and designation meets these requirements more fully than any other scheme that has come to my attention. I commend a study of this subject to both utility management and regulating agencies.[8]

Second: *a logical and equitable scheme for the apportionment of indirect expenses* to the various classes and kinds of product, in order that the complete cost and relative profitability of each may be known.

The Taylor method for apportionment or distribution of manufacturing indirect expenses, which is commonly though often imperfectly practiced in industrial cost accounting, is basic and may be adapted to the apportionment of any class of indirect expense in any business. Briefly it consists in determining and assigning to each machine, work-place or other unit of productive equipment a proportionate expense rate. These rates, for purposes of explanation, may be regarded as the normal cost per hour, over and above direct wages, for operating the respective machines to which they apply. In establishing them each item of indirect manufacturing expense, as shown by records for a normal year, is allocated to the various producing units. For example, building charges such as taxes, insurance, repairs to buildings, sweeping and cleaning, heat and light, etc., are allotted to the various machines in proportion to the floor space occupied. Power cost is distributed according to the horsepower required to drive each machine. Maintenance, small-tool costs and supplies are based on recorded past experience, and so on. Each item is allocated on an individual, suitable, logical basis. The sum of the amounts allotted to each machine is divided by the number of hours that the machine in question normally operates on productive work, giving a normal indirect expense rate per hour. Hours multiplied by machine or work-place rates are recorded in the same manner that direct wages on productive work are charged to classes of product and individual jobs, and the manufacturing indirect expense is distributed in proportion to the hours multiplied by the rates set up against each class of product and job. When these inclusive, proportionate rates for each producing unit have been established, charges for all items of indirect expense may be made to products by a single inclusive transaction. The laborious distribution of numerous items individually is thus avoided.

The general administrative and selling expenses may be allocated with reasonable accuracy and fairness to the classes and even items of products sold in a manner embodying the same principle. These for a given period are added to the cost of products sold during that period. For each product there is built up a weighted factor representing the proportional amount of each item of administration and sales expense that it should bear. Each item or class of such expenses would, in building up these weighted factors, have to be treated in accordance with its peculiar nature. The factors represent the cost per unit on a basis of a normal volume of business. Some products sold to a large number of customers in relatively small quantity may be charged with a greater amount of sales, advertising and accounting expense than others sold in large quantity to a few large users. Some may involve more service expense, more inventory investment cost, more purchasing expense. All of these are given due weight in the proportional rates built up for the various products. Naturally, both the rates used in distributing manufacturing, sales and administrative indirect expenses must be checked and revised from time to time to take care of changing conditions.

What I have said with respect to product costs applies in the main to capital expenditures for construction and for new equipment, whether for expansion or replacement of facilities.

As I have remarked, under the accounting methods discussed costs come largely as a by-product. Production and work orders are issued which indicate definitely not only what is to be done or made, but the charge or expense symbol and order number under the classification to which it is to be charged. The work is planned in advance, broken down into subdivisions and definite operations. Job-time cards for the operations are prepared in advance. At the proper time these are issued to workmen and work accomplished and time spent are reported on them. These, when extended, serve to accumulate and charge on the cost sheet for the work order, the wages paid and the basis for the indirect expense charge.

Requisitions on the store room (stores-issue tickets) are prepared for delivery of the various materials at the proper stages in the work's progress. These upon their return are priced, quantities and value deducted from the "balance-of-stores" (stock-ledger) sheets and the cost posted to the cost sheet. Adequate checks are provided to insure all proper charges on an order and to prevent improper charges.[4]

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[8] Cooke, Morris Llewellyn, "Classification and Symbolization," in *Scientific Management in American Industry,* New York and London, Harper & Brothers, 1929, Chapter IX, pp. 113-134. References to other works are given in the bibliography at the end of this chapter.

An important feature of this scheme is that the order or account to which labor or materials is to be charged is predetermined by a qualified person and not left to the judgment of workmen, foremen or circulating time-keepers.

The plan as developed for manufacturing can readily be adapted to the installation of meters, the reading of meters, construction of transmission and distribution lines, a large proportion of maintenance work, the installation of new machinery, etc., etc.

The basic features of the system of classification and accounting, including the technique of allocating general or indirect expenses, impress me as being peculiarly suited to the needs of the utilities. This viewpoint is supported by the trend or drift to which I have referred.

Recent papers on the subject would seem to indicate that attempts are being made to work out a plan to utilize the same ratios or formulae in the allocation of costs to classes of service by any or all electrical utility companies. I am of the opinion that any such average or general formula based upon the entire industry will be of little value. In industry it has been found that the rates for distributing indirect expense must be individually worked out for each company even within the same field. Identical machines in two different departments may have different rates. The same need for working out rates for individual companies in the utility field will, I believe, be found. For example, there would seem to be little in common between the distribution and commercial costs for residential customers in New York City proper and the City of Philadelphia. In one, apartment houses and tenements prevail, while in the other there is a preponderance of individual homes spread over a much greater area. Nevertheless, with better classification in which the main class of "residential" business would be broken down into significant subclasses, useful comparisons of the same kind of service in different communities could be made.

There is also evidence in recent utility literature that, in view of permissible earnings and hence rates indirectly being governed by invested capital, the matter of allocating investment to classes of service has been receiving considerable attention. As a matter of expediency this may not be criticized. And it must be said that in principle the methods of allocation are essentially the same as I have described in industry. Costs of service do not, however, necessarily bear any proportionate ratio to the capital investment involved. In industry, return on invested capital would be a very unsatisfactory basis for governing earnings. After all it is but one factor among many. Costs of each class of service in which capital investment is included, through depreciation and interest, would seem more satisfactorily to serve the purposes of both the regulating bodies and the utility managements, and to eliminate expensive controversy.

Value to Management

The value to management of such a system of accounting as I have outlined should be self-evident. As a practical manager I shall briefly sum up its advantages.

It facilitates: (1) measurement of performance in all branches and operations of the business against standards; (2) control over indirect expenses, comparable to that more commonly associated with direct expenses, and ready adjustment to meet increases or decreases in sales; (3) control over rate of operation and consequently expenditures of the business, including all forms of capital outlay; (4) control of inventories, keeping them within proper limits in relation to volume of sales and the avoidance of loss from obsolescence; (5) the focusing of attention upon relatively unprofitable products, small sales of profitable lines.

The idea is not new that cost finding and analysis along the lines that I have discussed should be made an integral and routine part of utility accounting and that the classifications which have, like Topsy, "just growed" from the original Interstate Commerce Commission effort should be rebuilt along more logical and usable lines. As far back as 1912 or 1913 I contributed to working out application of the Taylor methods of classification and accounting for a highly successful company in the field of utility management and later worked out in some detail a similar plan for another important company.

Some ten or twelve years ago in the *Electrical World* there appeared an article by W. J. Greene, P. C. Schoonmaker and C. B. Gorton describing an accounting system used by the Iowa Railway and Light Company. It largely conformed to that under discussion. These authors enumerated and discussed the advantages of routine cost finding as a part of accounting practice under the following heads: a guide for determining rates; a basis for cost-plus sales; a logical method for presenting costs in rate controversies; a method for determining costs of service in each town or city on a common transmission line; a measure for taking on new business; a measure for the extension of transmission or distribution lines; a method of determining the rate of return from a class of consumers or a city; a statistical knowledge of the business; a method of determining the efficiency of plant operation.

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[4] For detailed discussion of system of planning and control, see *Scientific Management in American Industry,* by the Taylor Society, New York and London, Harper & Brothers, 1929.

In concluding they said:

> The Iowa Railway and Light Company believes that an accurate knowledge of costs is essential to its further economic development and has arrived at the conclusion that, in addition to the generally recognized basic fundamental principles, there are other elements that have not been generally recognized in utility cost accounting and believes that these elements must be recognized as characteristics of public utility costs and must be used in connection with others as the foundation for the determination of unit costs.

More recently from within the utility ranks we find expressions indicating recognition of the need for development of cost finding as a part of utility accounting.

In the transactions of the National Electric Light Association, Volume XVII, 1930, will be found a paper on "The Significance of Price Economics to the Utility Accountant," by Herman L. Gruehn, Assistant Budget Manager of the United Gas Improvement Company. From this I quote:

> Up to the present time public utility accountants have been content to classify operating and capital costs according to the first cause for which funds were spent, as for instance, expenditures for coal, boiler labor, commercial labor, taxes, interest or investments in various types of capital equipment. But this classification does not correspond to the types of products which the company sells, consisting of electric energy in various forms in combination with the obligation to render continuous service up to specified demands; nor does it agree with the purposes for which the products are sold, such as residential lighting, power or other uses. Hence those responsible for selling the industry's product cannot now obtain from the accountant all the necessary cost data directly applicable for evolving class rates under which service is sold. . . .
>
> When treated according to the economic principles of price it is believed that such cost data should prove a valuable tool in solving the problem of increasing productivity of the investment dollar.

In the *Electrical World,* April 11, 1931, under the title, "Basing Rates on Cost Allocations," Mr. Adolph Raunenberg, Chairman of the Railroad Commission of Wisconsin, says in substance:

> There is little consistent application in allocating total burden between the various customers of a utility. Rule of thumb or gradual modification of old existing rates, makes for disorganization. The promotional rates have helped to increase the disorder. Critics too are in disagreement, some want the process of costing simplified and some more refined.
>
> The ideal is to assess each customer the true costs of serving him. It is improbable that sufficient data will ever be available to eliminate entirely all arbitrary opinion from any study of electrical costs. However, it does appear that an approach is possible which will reduce the influence of opinion and increase the influence of ascertainable data, so that the range of debatable difference will be substantially reduced.
>
> It has been the purpose of this study to avoid direct apportionment of different classes of consumers and to determine the costs of such apportionment in terms of the fundamental variables affecting costs. Then the costs of serving a given class of customers can be obtained by assigning to the various (classes) varying values which are characteristic of the class in question.

Many other papers, articles and committee reports, all having some bearing upon costs of service to various classes of consumers under various conditions, upon methods of allocation of general or indirect expenses and upon budgetary methods are revealed by a survey of utility literature. Mostly they have in mind, however, the building up of statistical guides as a result of detached analysis, rather than providing currently such information as a matter of regular and routine accounting practice.

Evidence of growing dissatisfaction with the existing classifications may also be found.

With declining cost, as a result of economic adjustment of physical equipment for the production and distribution of electricity, return on capital invested and particularly upon valuation may cease to be a desirable or even a fair basis for controlling rates or net profits. It would seem that the psychological moment has arrived for transferring the emphasis to cost of service, in which cost of invested capital is a factor.

Some twenty years ago Mr. Brandeis startled the country by the statement that the railroads might through scientific management save a million dollars a day.

I am inclined to believe that an equally great saving might be brought about in the electrical field if the scientific-management methods of classification and accounting together with scientifically established standards of performance were worked out and generally applied.

In conclusion, I feel that it is only just to express my personal opinion that it is amazing and highly commendable that utility management should in the absence of competition and in the face of limitation of earnings continue its efforts to increase efficiency and reduce costs. While other costs of living went up the price of electricity to the public came down.

Public demand for lower rates and better service has in a degree furnished the lower-cost incentive that competition furnishes in private industry. Engineering advancement has contributed, largely due to professional pride and desire of achievement. To some extent it has been forced by larger and more exacting service requirements, such as supplying power to large users who might operate their own plants. But the principal incentive, that of financial reward for greater efficiency enjoyed by non-regulated industry, is absent.

The Applicability of Industrial Cost-Accounting Practices to the Electrical Utility Field

By **JOHN H. WILLIAMS**
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I HAVE been asked to discuss the subject of the applicability of cost accounting to the electric utility industry from the viewpoint of a management engineer experienced in the field of accounting. Before doing so I want to tell you I am not an electrical engineer, and therefore shall, of necessity, confine my remarks to the purely accounting and public aspects of the situation.

As the three previous speakers have so ably and adequately discussed the evolution of cost accounting and its application and implications for industry at large, I shall not review any of this material. On the other hand, I shall tell you briefly, in advance of my talk, of certain opinions I hold with regard to cost accounting and the conclusions I shall reach.

First let me say that I do not regard a routine overall cost-accounting procedure as necessarily desirable in all industrial undertakings. It is not, within itself, an effective means for economy. It is desirable only where there is a question as to the relative cost of different articles and the price at which they can or should be sold; in determining the relative desirability of different methods of production or distribution; or in determining which group of products is the most profitable, and which to expand or contract.

As to my conclusions: First, I do not see that cost accounting had anything to offer the electric utility industry during its pioneer days nor indeed until very recently.

Second, with the advent of governmental regulation and the exclusive franchise, a potential need for cost accounting arose. This has become actual only within the last very few years.

Third, cost accounting has a real contribution to make to government-regulated industries and, if wisely developed and applied, it can be installed without destroying any of the advantages of existing methods.

The electric utility industry had its beginning in 1882 in New York City. At that time electricity was used exclusively for lighting, yet the service was sold on the basis of its being available throughout the twenty-four hours of each day. The maximum demand was during the afternoon of the short days of the winter months, when light was used both in the office and in the home at the same time. This demand lessened as the offices closed and further decreased as people retired for the night, yet there was always a potential or actual demand which had to be provided for. The electric companies could not store electricity during off-peak hours, as the gas companies could, and deliver it when required. They had to operate all of the hours in which service might be required and the ratio of the average load to that of the maximum was therefore absurdly low. Under these conditions there was no problem of cost accounting. The need was for diversity in the hours during which service was required.

With the development of the use of electricity for power and its gradual adoption both in manufacturing and in transportation the opportunity for diversity was greatly improved, but even after rates became more reasonable and electricity came into general use both in industry and transportation as well as in the home, there still was no need for costs in the sense of the relative cost of the different classes of service. The industry was highly competitive and the rule was to charge "what the traffic would bear."

The first need for cost accounting in the electric utility field came with the effective control of rates by the public service commissions. The public service commissions had long since come into existence, but their work had largely been with the railroads and in connection with franchises. Effective rate regulation did not come until well into the present century. The regulation of rates for electricity was a highly technical matter. The commissioners were, as a rule, not technical men and in the light of conditions in the industry, it is not surprising that rates should have been based largely upon technical factors and developed through special engineering studies.

The electric companies, while still privately owned, are in every other way public institutions. They are protected against competition and are guaranteed a fair return on a fair value of the property used. The operating companies cover large areas and many of them are owned by the same interests and are connected by super-power lines. Apart from a very few large consumers, for which rates will always have to be based on the cost to them of production, the consumption of no one customer is any longer a sufficiently large part of the whole business of one company for its load factor, etc., to be a matter of importance. There is, therefore, no longer a need for the present highly technical rate structure. On the other hand there is every need for a simpler and more equitable rate structure—one that the average consumer can understand—and for routine overall cost accounting through which the commissioners and the companies may know the relation between the revenue derived from each class of service and the cost of producing it.

It has long been recognized that a shipper who happens to have a load for a railroad car that would otherwise return empty is not thereby entitled to a special rate. Why does not this same principle apply to rates for electricity? Toll gates have been done away with on our highways and bridges, and letters are carried across the continent for the same postage as is required for sending them next door. Why then should the regulation of rates for electricity continue to be on the basis of the circumstance of when and how the electricity is used?

This brings me to the last of my conclusions, viz., that "cost accounting has a real contribution to make to government-regulated industries and, if wisely developed and applied, it can be installed without destroying any of the advantages of existing methods." Before going into this, however, I want first to call your attention to certain aspects of cost accounting and state my position concerning them, so that there can be no misunderstanding of what I say.

First, you hear people use the word cost as applied to the overall cost of a manufactured article as though it were definitely ascertainable. Costs are computed on the basis of judgment as to how indirect and overhead cost should be apportioned, and their accuracy is necessarily dependent upon the accuracy of this judgment. In many businesses certain departmental costs must be distributed and then redistributed several times, before the final overall cost is arrived at. The accuracy of all such costs, however arrived at, is in reverse proportion to the number of such distributions and redistributions.

To make clear what I mean, let us assume that three men agree to live together in one house and to divide the expenses between them. The youngest of these men is seldom at home in the evening and often away for meals, but usually at home at night. The eldest is seldom away during the day and never away for meals, but often away at night. The third has business interests which require him to come and go irregularly. Under these conditions, what would the relative cost of service to each be? How would expenses be divided?

They would probably first divide them into a number of items, such as: rent, insurance and taxes, light and heat, household, table, wages, etc., and keep a record of the number of nights and meals for which each was at home. They would then apportion the various expense items, on some equitable basis, to lodgings and meals, and these in turn to the three men. So far so good, but how would they decide what portion of each item of expense to apportion to lodgings and what portion to meals? Also what part of the cost of a night's lodging and of a meal should be apportioned to each as representing a demand or standby charge for the nights and meals for which each was away?

This is the element in cost accounting at which criticism is usually directed and so far as costs are determined by special studies the criticism is justified, for the reason that there is literally no means of checking the distribution. The final cost when arrived at must be accepted or rejected sight unseen. With overall costs arrived at through continuous routine, however, these distributions as well as the final cost can be compared with similar costs for other periods, and where the same methods are used in several concerns, as would be the case in the electric utility field, the same elements of cost can be compared as between different concerns. The fact that you have all of the cost, in the case of a continuous routine, is particularly helpful in checking the cost for any one product or service, because the effect of a change in one item is immediately reflected in some other item. Costs under these conditions become increasingly dependable as the basis of distribution of indirect and overhead expense becomes adjusted to the conditions involved.

I once had five clients in the same industry, all of the costs of which were computed on the same basis. Under these conditions, where we had a check not only between different periods within each concern but also as between the five concerns, their costs soon were accepted unquestioningly by all concerned.

Second, the man on the job, the manager, the superintendent, the practical operator in whatever position, is always more interested in costs in descriptive terms which he can identify with someone in a position to effect economies in them than he is in overall costs for a product or service. Such costs lend themselves more readily to supervision and control. They are the items in which budgets are made and in which expense is kept. The electric companies, as I understand it, have their accounts in these terms and I feel that some of the objections which they voice grow out of a fear that in introducing overall costs their budgetary costs may be contaminated.

Third, during the early stages of cost accounting it was universal, and even now it is common, for concerns to do their cost accounting as an integral part of their general accounting. This frequently destroys the availability of past records in their original form and it may be that the electric companies have this possibility in mind. This also can and should be avoided.

While the distribution of expense and the determination of ultimate overall cost should be separate and apart from the general accounting work, it should be based upon it, developed out of it, and include all cost and revenue. Otherwise routine cost accounting means nothing more than a glorified special study.

Coming now to the question as to how cost accounting may be installed in the electric utility companies without destroying any of the advantages of the existing methods, I have in mind a procedure somewhat as follows:

1. While the early stages of this work must be done in close co-operation with the general accounting department, it would be a mistake for the individual or group directing it to be subject to the general accounting department.
2. A theory and plan of distribution and expense should be worked out and tested on existing figures in an experimental way. Only after these experimental figures give substantial evidence of a satisfactory plan should the accounting classification be changed.
3. After the revised accounting classification has been in effect for a short time the figures for several companies compiled under it should be computed into overall costs and these costs compared to see if they reflect such differences in overall costs as would reasonably be expected to exist between the companies compared.
4. The foregoing work should not be hurried and it should go forward with a view to perfecting the method rather than getting quick results. Only after the new accounting classification is working smoothly and the method of distribution of expense and computing of overall costs has been fully perfected should the work of determining overall costs at regular intervals be turned over to the general accounting department.

Discussion

Morris Llewellyn Cooke.[5] I should like to get Mr. Anderson's opinion as to the financial, social and other advantages of introducing cost finding into an industry whose present revenue is nearly two billion dollars a year and where no effort at routine cost finding has been made. What percentage of increased profit would be expected to result from the introduction of a cost system into such a business?

Malcolm F. Orton.[6] If savings have been effected in industry through cost accounting have they been in the nature of the elimination of operating and capital expenses or of unprofitable lines that have been shown up?

And do you believe a system of budgetary control, which permits comparisons between different plants but is not accompanied by a detailed system of cost accounting, would result in a pick-up in efficiency equal to that to be secured from a refined system of cost accounting?

D. R. Anderson. My personal opinion is that cost finding is more essential in this field than in the industrial. Public utilities are in the last analysis operating for private industry. Industry must render service and should be compensated for its service on the basis of fair costs for all parts of it. It would seem to me that accurate and modern methods of cost accounting are more important for the utilities than for private industry.

I am not sure I can answer the second question. In the plants with which I am familiar it has been possible to show a 10 to 15 per cent increase in profits after the introduction of cost finding. Cost accounting in itself will not do the job, however. It has to be used through adjustments in rates and other means. An industrial concern could hardly survive at the present time, because of the competition which has developed, without a cost-accounting system but I do not feel qualified to speak for public utilities.

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[5] Consulting Engineer, Philadelphia, Pa.

[6] Chief, Research and Valuation Bureau, Public Service Commission of the State of New York, Albany, N. Y.

In answer to Mr. Orton I should say that a cost-accounting system should result in both a reduction in operating and capital expense and in the elimination of unprofitable lines. In an industrial concern you first notice a reduction in waste. When accurate product costs are achieved they are used in adjusting sales effort.

We have the sort of comparisons between mills of which Mr. Orton speaks but do not consider them a final measure of efficiency. Time studies are made and standards set independently. If this were done by the public utilities I should think it would be all that could be accomplished. Adjustments of sales should provide additional savings.

John H. Williams. I recently had five printing concerns as clients. Each used an identical system of budgetary control and results were compared periodically. When one firm saw another doing a similar type of work at a very different cost it was stimulated to effect changes, even though problems were dissimilar, that resulted in increased efficiency.

King Hathaway. To mean anything comparisons must deal with identical conditions. That is one of the difficulties in the utility field. You cannot compare meter readings in a tenement-house district with those in the suburbs, for example. But you can set up standards of performance for every activity of the utilities.

A recent client of mine had overall costs but did not know how to use them. In going over the products we found some for which we could get more money. One item which was being manufactured in considerable quantity was selling for sixty cents and costing ninety. No more money could be had for it nor could it be dropped. The manufacturing department got busy and ultimately worked out a better product at a cost of thirty-three cents—by substituting a steel for a brass casting and eliminating certain parts. A knowledge of complete costs enabled us to do many things which would have been impossible without them.

Judson C. Dickerman.[7] I am personally acquainted with two industries—heavy chemicals and electric utilities—and they are radically different as I see it. In the chemical industry our labor costs for the whole business amount to less than 20 per cent of the cost of the whole product. Materials are a heavy item. The fixed capital costs are almost insignificant—a few hundred thousand dollars for several million dollars worth of annual product. Working capital—the flexible thing—is of course a big item. It is represented by two or three million pounds of acid in chambers.

In the public-utility field operating costs—labor and material—make up one-third of the value of the products sold. Fixed capital makes up the other two-thirds. In the hydro-electric industry it represents about 80 per cent of the value. In industry, operating costs, including the use of men's labor, are the important things. I should like to have the cost-accounting people tell us how we can study capital distribution.

Mr. Cooke. It should not be assumed that public-utility plants are ideal. They are inefficient in the same way that private industrial plants are inefficient at times. Even the fact of low rates does not necessarily mean a wise use of capital.

Mr. Hathaway. Private industry has fixed capital —plant, machinery, tools, etc.—which must be taken into account in figuring costs just as items of operating expense are taken into account. Economical construction and use of fixed capital are equally important in either field. Fixed capital becomes an operating cost through the expenses which result from it—interest, depreciation and maintenance charges. I might say also that even though operating costs are such a small part of the public utilities products, they are important because of the total amount of product sold and should be studied.

Mr. Dickerman. While the best methods of cost accounting are not being used in the electric industry individual operations are being studied and capital investment controlled. Waste of material is being reduced, labor efficiency increased; research workers are studying such things as the cost of billing and comparing these costs for different districts. The trouble lies in the fact that these studies are not used in adjusting rate schedules.

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[7] Industrial Survey Department, Massachusetts Institute of Technology, Cambridge, Mass.

Mr. Orton. Unit costs are broken down into functional divisions and checked with total costs by multiplying each functional cost by the number of units involved.

Mr. Williams. I believe it would be difficult to make such totals prove with the books under this system and that the system would be useless in effecting economies. If instead you had the total amount spent for the different kinds of services, the amounts received for these services could be increased or decreased and your problem solved.

Judson King.[8] When I was in Toronto in 1927 a chief engineer of the Ontario Hydro-Electric Power Commission was very resentful over allegations being made on this side of the line that "Hydro" was selling domestic current under cost and making up the loss by overcharging industrial consumers. He stated that a number of professors, engineers and even U. S. government representatives had been courteously allowed to see their books but had returned to misrepresent them. He showed me their cost-accounting records from which they estimate as nearly as possible the exact distribution cost per kilowatt hour to domestic, commercial, industrial and street-lighting consumers and stated that such cost-accounting is not practiced by us. I later challenged the president of the National Electric Light Association and Samuel Ferguson of Hartford to name five companies in the United States that practiced adequately cost-accounting on delivery from bus bar to consumer. Though I offered $100 to the Hartford Community Chest they have thus far kept silent.

Have any of you looked into the cost-accounting system of the Ontario Hydro-Electric Company, and can you give any professional opinion as to its worth and accuracy?

Mr. Cooke. Price Waterhouse has stated that it knew of no industrial concern that had a better system.

John Maurice Clark.[9] I have been wondering how far you could go toward achieving simplicity in cost accounting for economy by grouping your utility products and your consumers and seeing which groups raise substantial questions of rate revision. You could perhaps limit your classification of costs in accordance with the answer to that question.

Mr. Hathaway. The National Electric Light Association classification of operating accounts covers meter sales to general customers, flat-rate sales to general customers, other electric corporations, municipal street lighting, etc. It is of little use. The new Wisconsin system which is not yet in use will be better, but most of the classifications are too broad. "Commercial" customers will include Macy's and the corner cigar stand. Large apartment houses and cottages are included under "domestic." These large classifications should be subdivided.

Mr. Williams. The public-utility man is going to question the practicability of making as close an analysis of original expense as the industrialist is able to make. According to them cost is affected by diversity in the load factor and a simple rate structure is essential.

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[9] Professor of Economics, Columbia University, New York, N. Y.

SOCIAL-ECONOMIC planning is not merely a device to give everyone a bathtub and a Ford—though the first objective naturally must be to raise the lowest standards of living, not to speak of providing everyone the assurance of enough to eat and wear. But, after such modest goals are achieved, it may appear that people really do not want to go much further in that particular direction. We may be more interested in the quality of our satisfactions than in the quantity. We may want more beautiful communities in which to live, more chance to get back to the woods, to have camp-fires, to swim, to fish, to hunt. We may decide . . . to create variety for ourselves. (George Soule, *A Planned Society,* The Macmillan Company, page 282.)

Avoidance of Depression[1]

Stabilization through Fiscal Policy

By VIRGIL JORDAN
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I

BY WAY of setting an atmosphere for what I shall say, I quote a few sentences from the apocalyptic pages of that strange, unappreciated social philosopher Simon Patten, who seems to have been the first American economist to point out the paradox of plenty put to us by the machine age. About twenty-five years ago he said:

> Those who would predict tomorrow's economic states from a study of the economic states of Rome and Venice overlook the difference between a society struggling to meet a deficit and one so well situated that thought can be centered on the equitable distribution of a surplus. In the one case, civilization must develop its traditions to keep the deficit as small as possible and eventually to overcome it, and in the other to utilize the surplus for common good—not to undermine energy and productive ability, or to create parasitic classes, but to distribute the surplus in ways that will promote general welfare and secure better preparation for the future. The one type of society may be called a pain or deficit economy; the other, a pleasure or surplus economy. All civilizations before the nineteenth century, like the primitive societies of the Western world today and the backward despotisms of the East, were realms of pains and deficit in which the traditions and experiences of man were moulded out of the general menaces to life and happiness. . . . Mental habits continue long after the economic conditions which fashion them have disappeared, and popular beliefs reflect the passing age of nature's deficit. The economic revolution is here, but the intellectual revolution which will rouse men to its stupendous meaning has not done its work.

These are true words, especially pertinent in a period when almost every economic institution established on the basis of a scarcity concept of value seems to be on the point of collapse, and when every utterance of responsible public officials and private business authorities exhibits an extreme confusion and obscurity of understanding about the nature of the modern economic system, the causes of its breakdown and the lines of policy imperative for recovery and future stability. When the Administration and the entire business community establish as their slogan economy and balanced budgets in public and private expenditures, forgetting that every time a budget is balanced by an individual, a business concern or a government it means that someone else's income and consumption must be curtailed; when every banking institution sets as its goal the greatest possible liquidity, forgetting that no bank can become more liquid except at the expense of the liquidity of some other bank; when a Secretary of the Treasury deplores high income taxes or public borrowing on the ground that they divert capital from industry and retard business expansion, and suggests, without daring to support, increased consumption taxes—in all these things, and many others, we can see the strangle-hold of that grubbing gospel of penury and despair, that fatalistic philosophy of save and slave suited to every earlier economic order but utterly archaic in its application to the power age and surplus economy in which we live.

The appalling failure to understand what sort of situation we are in may be excusable on the ground that it is, so far as we know, the first instance of a surplus crisis as contrasted to a deficit depression in human experience. None of our institutions or accepted economic ideas is adapted to handle it. The smart statesman who, speaking of treasury operations, said that it is easier to deal with a surplus than with a deficit was quite mistaken, as even the lamentable experience of Mr. Mellon illustrates. All our institutions, from banks to breadlines, are adapted to a chronic deficit economy, and radical changes in them are necessary if we are to deal successfully with an insuppressible surplus condition.

In this and every other highly developed industrial country, domestic consumption is now the key to every vital economic question. It has become the basis of industrial stability, the source of business profits, the measure of standards of living, the ultimate test of social progress. It sets the limits of profitable capital investment and industrial expansion, establishes the value of corporation securities, and must determine the fiscal policies of government.

Three stages can be distinguished in the development of American business during the past hundred years.

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[1] Papers presented before a special meeting of the Taylor Society, New York, April 14, 1932.

They overlap; none of them is quite completed and the last has only begun. The first, the production phase, was marked by expansion of manufacturing capacity, intensive development of industrial efficiency and cost reduction, culminating in mass production of standardized goods and services for national and world markets. The second, the distribution phase, was concerned with more efficient methods of marketing and merchandising, at first by extensive development of devices for mass distribution, and more recently by intensive appeal to varied and changing individual consumer tastes. Finally we have come to what may be called the absorption stage, in which the essential and still unsolved problem that confronts future business progress is to expand the absorptive capacity of the consumer market, not merely by lowering prices through cuts in production and distribution costs, or by reaching more consumers through extensive or intensive sales efforts, but by discovering means to increase the total spending power and spending disposition of the mass of consumers who must be counted on to absorb the bulk of the goods and services produced and offered for sale by modern business. Within a century the emphasis has thus shifted from the problem of manufacturing goods to that of manufacturing customers, and this problem will become of increasing moment as the rate of growth of our population continues to decline and as our technological advance continues.

This is mainly a mechanical problem, involving control of the uses of purchasing power as between consumption and investment. It has its important psychological and ethical aspects, in some of which I am greatly interested, but I am not concerned with them here. In fact, the tendency to treat the problem as a question of social justice or of equity in the distribution of wealth has done more to confuse the issue and retard progress toward its solution than almost anything else. It does not matter who has the money or how much, but what he does with it; the uses of money have become impressed with a public interest. We are likely to make more headway if we forget the grievances of the man in the street, concentrate attention on those of employer and business man, and try to make him understand that the essential issue in the question of continuous consumption is one of insuring the stability and profitableness of business, of making the industrial mechanism work smoothly and successfully. The only alternative is to scrap the whole capitalistic contraption and construct something new along lines of state socialism, centralized national planning and control of production and investment, which I do not think is necessary or desirable.

I do not intend here to criticize the planning concept, but I think it can be shown that deep beneath the surface of it, in almost perfect disguise, you will find the scarcity concept of value. Fundamentally it is designed to restore and stabilize a deficit economy, by curtailment of production and systematic sabotage of productive power. It has developed in and apparently fits perfectly a situation in which capital facilities are inadequate and consumption needs to be curtailed for the sake of capital accumulation, as in Russia. There can be no reason for applying it to a surplus economy other than the purpose of maintaining the value of existing savings and capital investment, prudent or not.

This is the nigger in the woodpile of every proposal for national planning which implies production control by governmental supervision, or by revision of anti-trust laws to permit price fixing. Even where the intentions of its advocates are ingenuous—and in some cases they are—I am sure that the purpose is impossible. In every advanced industrial community, in which there have been accumulated capital facilities of production sufficient to provide a higher standard of living than the population actually enjoys or a scale of consumption larger than it absorbs, almost all additional savings and surplus profits and part of the excessive past savings are perforce confiscated or dissipated in consumption by the automatic processes of price competition and periodic boom and depression. There is a law of degradation of capital in economics comparable to Carnot's second law of thermodynamics in physics, and it lies behind the modern business cycle as much as it does behind all periodic physical phenomena. It all comes down to the fact that when an economic organization has passed out of the scarcity stage and into the surplus stage, consumption is compulsory and inescapable.

In a paper at the last annual meeting of the American Society of Mechanical Engineers I tried to explain, somewhat superficially, certain aspects of the process which are sufficiently obvious, such as the periodic expansion of consumer purchasing power by investment of savings, surplus profits and pyramided bank credit in the construction of private capital facilities or in production for export, and the writing off of such investment or the recording of its dissipation in subsequent depression when no further increase of consumer purchasing power is forthcoming to support the new productive capacity which it created.

Since then, further statistical studies by the Federal Reserve Bank of New York in connection with corporation profits, and some studies of consumption upon which I have been engaged, throw further light on the process. As a result of them I think it can be shown that at no time since 1919 has there been any such thing as overproduction or underconsumption of manufactured goods as a whole, in the strictly statistical sense of a volume of surplus not currently absorbed at some price. Nearly all manufactured goods, and of course all services, have been currently consumed, whether or not the costs have been fully paid by consumers. The year-to-year changes in inventories of consumers' goods could not amount to more than 2 per cent of the total in any year, and the over- or underproduction of finished manufactures in relation to the current rate of consumption at no time exceeded 5 per cent in volume.

The fluctuations and cyclical movements of both industrial production and consumption during this period have been directly connected with changes in purchasing power in the consumer market; that is, with wage, salary and farm income, and in fact can be definitely forecast by the cumulative changes in such income over a twelve-month period. The purchasing power fluctuations themselves appear to arise from financial factors external to the productive operations of the consumer goods industries themselves, principally the accumulation and use of corporation surpluses and the changes in the volume of bank credit invested in production of capital facilities. Yet in spite of the fluctuations in volume of production and consumption during this period, which show that in fact total production has always been balanced with consumption, it is evident that there has been a continuous dissipation of capital because the value of the goods and services consumed—measured at prices which reflect a nominal profit—together with savings made and taxes paid by individuals, has consistently exceeded, by an average of about 18 per cent, all reliable estimates of the national income year in and year out.

In other words, all the goods and services produced have been consumed, but part of them have been given away, and their cost has come out of business surpluses and bank credit, and indirectly out of dissipation of savings of individual consumers themselves through bank failures. The profits of those business concerns that have made any during this period have been derived from the losses of the rest (and of bank depositors and investors). On balance not only have the services of capital been given to the community gratis, but part of the capital itself has been dissipated in consumption.

Apart from the dissipation of savings and bank credit in production of capital facilities, a most important feature of the post-war period was the enormous dissipation of capital in the production of goods for export. Some of this was capital goods, some consumer goods; but it all came to the same thing. It relieved the domestic market both of some unnecessary productive facilities and some consumers' goods, not offset by corresponding imports, put a lot of money in the pockets of American consumers and gave foreigners a lot of things for nothing. So long as the investment was unproductive and was never to be repaid, it was the most effective possible means of promoting domestic consumption while it lasted. It was just as though it had been put into public works at home. In fact it can be said as a safe generalization that most export trade, and certainly all favorable balance trade, is done at a loss to domestic investors and at a gain to both foreign and domestic workers, for export products are pretty generally dumped in order to maintain an excessive productive capacity at home.

I appreciate that it is impossible to make this whole picture clear in any short statement, but the essential conclusion which I ask you to accept on faith is that, by virtue of this process, modern capitalism in its advanced stage has become, under compulsion of automatic economic forces, the most comprehensive and colossal system of unorganized and unwilling charity the world has ever seen, simply because it cannot accumulate the surpluses which its productive capacity provides or use them in any other way than to consume them. If that part of the community which accumulates them does not consume them—and it cannot because it is small in numbers—the rest must and will and does. Balancing production with consumption is therefore a meaningless phrase. It not only *does* exist already, for industry as a whole, but it in no way necessarily implies stability of employment or anything else. The instability of production, consumption and employment which is the curse of the system arises from external factors which affect the flow of purchasing power in consumer channels; and the problem of stabilization is essentially so to affect this flow that consumption may continuously and steadily increase. This done, we can let production, profits, enterprise and everything else take care of themselves.

II

I am interested, then, solely in the problem of developing a pervasive and not too particularized technique of control of the uses of purchasing power, that is, money and credit, which shall make some modification in the capitalistic system in the direction of stability and security of consumption without destroying its other essential element, which is individual enterprise and initiative in production.

There are several plausible approaches to this problem besides the one which I am scheduled to discuss in this paper, that of fiscal policy. I am reluctant to reject them absolutely, but I doubt whether they are sufficiently important and certain in their operation to support.

One is the direct reduction of working hours by blanket federal regulation, for which Dahlberg has made such a strong case in his recent book, "Jobs, Machines and Capitalism." The essential theory here is that legal restriction of the supply of labor will raise its relative bargaining power and bring an increase of purchasing power in the consumer market. The uncertain element lies in the question whether such restriction will not speed up technological improvement and increased investment in labor-saving devices and their production sufficiently to offset its effect on employment and consumer purchasing power. I do not know, but I suspect that industry can adjust production to a reduced labor supply as easily as it does to reduced consumption. I am afraid that we shall merely be stabilizing unemployment and spasmodically confiscating or dissipating more capital in the form of consumption of leisure instead of consumption of goods. I am, of course, for increasing the consumption of leisure as well as of goods, but I do not see that this can be done in any other way than by diverting purchasing power from the investment into the consumer market. Spreading work without raising wage rates does not increase the relative total purchasing power of the consumer market, and does not expand the consumption of goods. Consumers need and will be glad to buy leisure when they can afford it, but reducing working hours may only result in enforced consumption of free leisure at public expense, that is at the expense of capital or other consumers through taxation to support the unemployed. I have no objection to the taxation, but I have to unemployment, and I am inclined to feel that it will be time enough to consider compelling continuous and full use of existing production facilities by limiting working hours when we have prevented further expansion of plant capacity and provided purchasing power to keep what we have employed by diverting investment funds from that field into the consumer market.

The other approach, that of blanket credit control through central bank policy, has always been tempting in its possibilities, and for several years past I was quite cracked on the subject, but I have been compelled to abandon hope of permanent progress in that direction. Of course, so far as recovery from this depression is concerned, or indeed prevention of the complete collapse that is just around the corner, I do not question for a moment that it can come only by drastic emergency manipulation of our monetary standard by outright devaluation or direct inflation of the currency. All of the Administration measures so far taken have been designed to avoid this and the direct confiscation of excess savings and capital involved in devaluation. They are endeavoring to support security values or debt claims by use of public credit and to put into operation again the old stock-market-investment-banker theory of prosperity, which is as dead as the dodo.

They have failed completely, and their collapse has demonstrated the fundamental defect in the principle of stabilization by general credit control; namely, that it is quite as important who uses bank credit as how much there is. In other words, the effect of bank credit on price-levels, production, consumption and employment depends upon the channels in which it circulates, and it can influence them only through the consumer market. It is possible periodically and spasmodically to finance consumption by financing production and private construction through bank credit, but it is impossible to do so continuously and smoothly. To make general credit control effective I feel that we shall have first to unify our banking system and possibly nationalize it. That is why we shall have to resort for recovery either to direct inflation through use of Federal Reserve credit for public works which put purchasing power into the hands of the unemployed consumer, or to direct devaluation of the currency by congressional action.

III

I have turned, therefore, to the taxing power of the federal government as the most effective and precise single instrument for stabilizing consumption, and thereby business, by directing the flow of purchasing power from the investment into the consumer market. The principle is established in the graduated income tax, the surtax and the inheritance tax, but the technique of its application for this purpose has never even been consciously considered and certainly never studied, although taxation is the most important and uncultivated field of economic investigation there is today.

One reason for the confusion of thought on this subject and the consequent slap-dash sporadic character of our taxation policies is that we have only entered upon the consumption age, are still ruled by prejudices on the subject of saving suited to a scarcity economy, and have as yet made no attempt to develop an economics of consumption. Our knowledge of the bare facts of consumption in this country is only beginning, and we know almost nothing in a comprehensive way about plant capacity and corporation financial policies, which are essential to the use of taxation technique to control and stabilize the dissipation of capital in the consumer market. In order to apply it with great precision and intelligence we shall have to know more than we do about the distribution of consumption expenditures, savings and direct taxes by income groups, about the uses of corporation surpluses, and the overcapacity and rate of obsolescence of plant in specific industries.

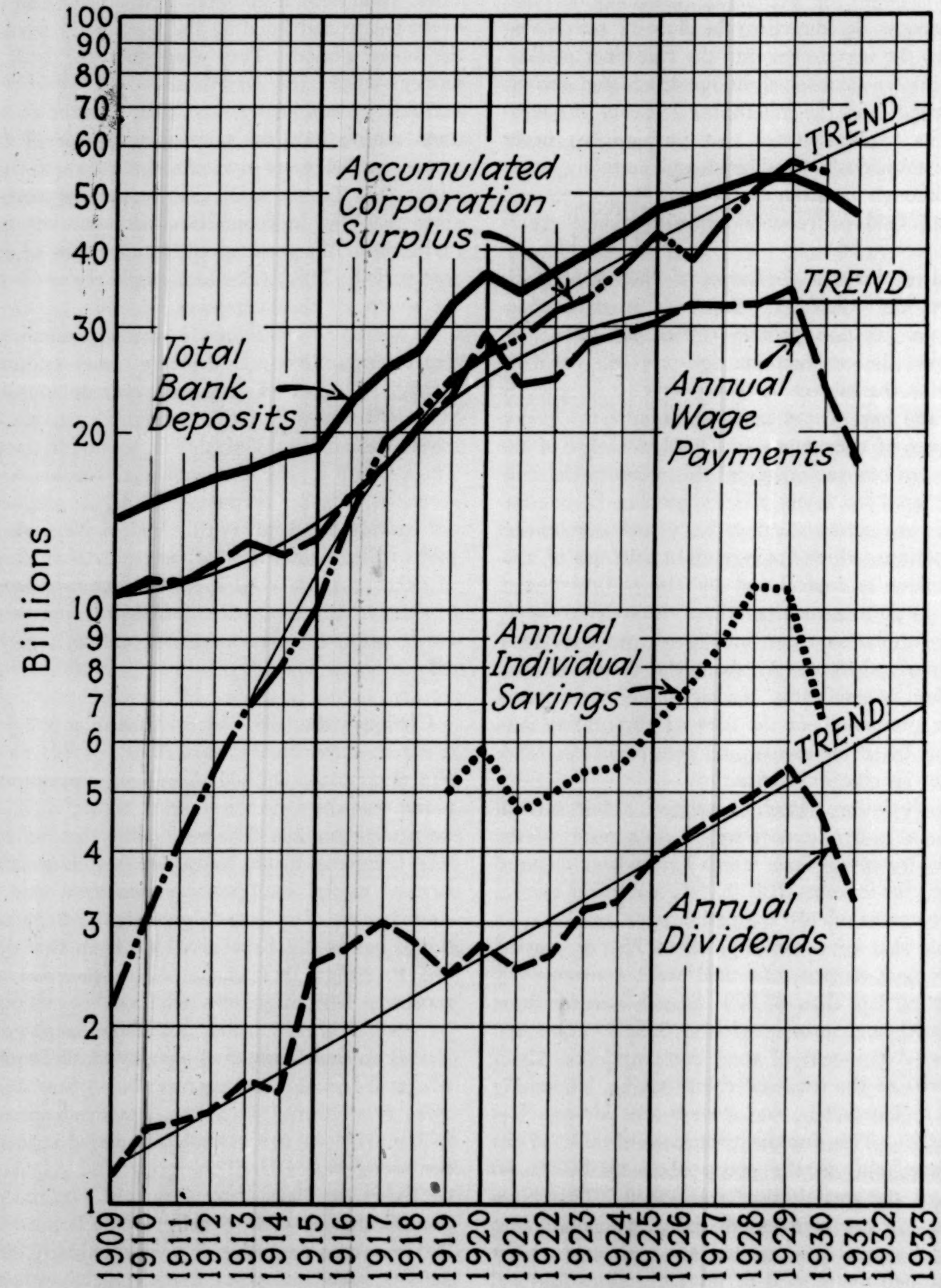
But we do know enough to suggest a few general lines of fiscal policy to start with. As a result of the study of consumption upon which I have been engaged in the past year it seems clear that the consumer market is today overwhelmingly a small income market. In 1929, peak year of prosperity, about 75 per cent of the goods and services absorbed were consumed by those earning less than $3,000; 85 per cent by those below $5,000; and incomes of over $25,000 accounted for a bare 3 per cent of total consumption. About three-eighths of the total individual saving, amounting to twelve billion dollars, was done by the income class over $25,000. This income group saved half of its total income, and in the group above $100,000, 60 per cent of the total income was saved. This gives some idea of the sources of individual investment funds which cannot now get into the consumer market except through the process of investment in additional productive capacity. It leaves out of account, however, the vastly greater reservoir of investment funds in the surplus and undivided profits of corporations. These have become the dominant influence in creating overcapacity and building the speculative pyramids of the boom period. They constitute the bulk of the money which the investment- and security-market machinery manipulates, and their accumulation is the main reason why the purchasing power of the consumer market dries up. As the accompanying chart shows, the rise in undivided surplus of corporations since the War in comparison with payrolls and even dividends is the most spectacular feature of the post-war period. This is the best single picture I know of the source of the depression.

In addition to this there is that accountant's elusive item—depreciation and depletion reserves, amounting through this period to about four billion dollars a year. About half of this, so far as anyone can discover, was actually used, that is, spent for the purpose. The rest of it, like the undivided surplus, went into securities of other corporations. These surpluses were not cash, although toward the end of the period a good part of them were, but they were invested in securities of other corporations, spent in financing increase of productive capacity, often of their competitors, paid out in wages of other industries and so largely written off.

IV

Obviously the basic object of taxation policy must be to divert continuously as much as possible of this surplus unspendable individual and corporation purchasing power into the consumer market before it gets into the investment market. The very thing that, as Mr. Mills tells Congress, would be catastrophic now—the diversion of capital into public expenditure, and the discouragement of private "productive" enterprise—is the thing that would have saved us from this depression and that alone will insure stable progress after we recover. The only ones who can be seriously hurt by such a line of policy are those employed in the investment-machinery and security-market squirrel cage who will have a large part of their poker chips taken away from them. However, small individual savings will provide enough capital for needed expansion and for speculation. Until the growth of population, rise of living standards and increased consumer buying power catch up with capacity, which is now by 100 to 200 per cent excessive in every industry, it will be safe to proceed along these specific lines without at-

Wages, Dividends & Undivided Profits



tempting to calculate or control too closely the amount of investment funds needed for private capital facilities:

1. Initiate immediate inflation by using Federal Reserve credit to finance a very large public equipment program, loaning the money on long term to states, to be loaned by them to municipalities. This work should preferably be organized under a Federal Construction Corporation.

2. Accompany this by steeply graduated surtax rates and stiff inheritance taxes which practically expropriate all individual income above $100,000, and all estates above two million dollars which are not devoted by gift to public purposes. Investment in outstanding tax-exempt securities should not be interfered with, since it will make borrowing for public improvements easy and increasingly cheap; but issuance of new federal tax exempts should be limited after a period of years.

3. The federal-income and inheritance-tax rates should provide for rebates to states which themselves levy such taxes, so that the rate shall be uniform throughout the country. Thus, if the federal rate is 25 per cent on a certain income or inheritance, and the state has a 10 per cent rate on the same, that part of the tax collected by the federal government should be rebated to the state. This would of course require that federal rates should be raised very high, so as to maintain the federal revenue. But federal public work is not important and the high rate should serve the purpose of enabling the states to raise a larger part of their revenue out of income taxes for distribution to local uses and thus relieve real-estate tax burdens.

4. Income from foreign sources should be subject to the same tax as that from domestic sources, regardless of taxes paid abroad.

5. The corporation income tax should be abolished and replaced by a stiff tax on undivided surplus and on payments of dividends to other corporations, so as to force distribution of profits to individuals. Rebates should be allowed for public gifts, for nonproductive expenditures to acquire other plants to be taken out of operation, and for replacement and improvement of existing productive facilities which do not increase capacity.

6. The export of capital in any form need not be interfered with, but a specific, flexible tariff policy should be used to restrict total imports of commodities and services to balance exports. It is obvious that purchasing power cannot leave the country except as goods or services paid for here, which thereby increase domestic consumption, or as gold, which is bound to come back if foreign debts are paid and imports restricted. If foreign securities are bought in the domestic market and the investor remains here his income is taxed. If he goes abroad with his securities his money remains here. The flight of capital is largely a myth, and is unlikely in any case because the profit rate in American enterprise will be enormously increased as the consumer market is expanded and increase of capacity restricted by taxation. Even if a dumping of large holdings of American securities by sabotaging investors of large incomes should result it would stimulate the wider distribution of them among small holders who would spend their dividends.

Capital sabotage and strikes are not to be taken seriously, if it is quite clearly understood that there can be no other use for capital but to spend or to invest. If it is spent, so much the better; if invested, individual return will be taxed; if put into tax exempts, government borrowing for public work will be facilitated and debt charges reduced; if hoarded, any intelligent banking policy can easily replace it.

V

The uses to which the funds so secured could be put by government would be fairly clear for a considerable period. The possible expansion of public improvements and production of social facilities for collective free consumption are enormous. The country needs not only express highways to relieve urban traffic congestion, parked road systems, parks, recreation grounds, vacation playgrounds, reforestation, sewerage disposal systems, better country roads, but could use more museums, libraries and community centers. The production of these will employ many millions directly and indirectly for a long period. The expenditures on them will go directly into purchasing power of the lower income groups and expand the market for products of other established industries. The services they provide will not compete for the consumer's dollar; they will create a demand along with purchasing power for many goods which can be consumed only in leisure time. Their greatest merit is that they are "unproductive" in the literal or business sense. Other investments are productive only in the sense that some consumers now get the product for nothing. In the case of public works, all consumers do.

Even before the expansion of public improvements reaches its saturation point, if any, it will be desirable to plan for special uses of public funds so secured. They may then be employed to speed up the obsolescence of private facilities, especially by destroying and replacing with parks or open spaces the congested and obsolete residential districts or blighted areas of the large cities. This will not only raise real estate values and taxable resources of adjacent property (as parkway systems have for suburban areas), but will create a demand for improved private residential building in outlying districts and give city planning projects an opportunity to operate. Thus public funds may be used to stimulate private construction. This kind of public investment in destruction is becoming more and more necessary to preserve our older and larger cities from decay and to prevent the bankruptcy which is resulting from obsolescence as their populations are being driven or sucked out from older districts.

The direct use of public funds to provide improved housing for the lowest income groups is inevitable anyway, and will speed up the obsolescence of the rotted areas of cities. It would be better, however, to tackle these directly at first by removing them outright, and give private interests under closer public supervision a chance to provide facilities to replace them elsewhere.

It should be remembered also that funds raised by such taxation may be used to retire public debt in periods when public work is not needed in exceptional volume. In this way they will lighten the debt charges and increase the proportion of tax revenues that can be used for public purposes. When debt is retired the funds will of course flow back into the private investment market where they can be reached by further taxation as tax-exempt securities are reduced.

Although, as suggested, the initial effect of this line of fiscal attack on the consumption problem will be to increase business activity and profits, if consistently and thoroughly followed the surplus taxable resources which can be used for public improvements will ultimately be exhausted. But that will be only because they are being currently spent for private instead of public consumption. By that time everyone will be employed in producing and consuming as much private goods and services as possible, which, as an economic Euclid might say, is what we set out to demonstrate. It is by definition the stability which we seek, and the only kind worth having.

Shall we ever find it along with the pathway of such a policy? I think we shall not in our lifetime. But I believe we have begun to move toward it.

Is there any easier or quicker way? Perhaps the other speakers can answer that.

Stabilization through Money and Credit Policy

By **WILLIAM T. FOSTER**
Economist, Cambridge, Mass.

THIS major depression of business started in the United States. It is wholly monetary. It is chiefly the product of the mismanagement of our bank resources. Restoration of an adequate flow of bank credit in the right channels would end the depression within a month. The flow of bank credit is, and always has been, wholly subject to human control. It is not governed by "natural law." It is not a visitation of Providence.

All we have lacked in this country for the past two years—all we lack now—is the courage to do, with what we have at hand, the obviously necessary thing. We can hardly blame Europe for that.

Industry fails to employ more men and produce more goods, solely because it cannot sell the goods. It cannot sell the goods considered as a whole at the going price-level (this, of course, does not apply to every commodity) solely because the consumers who want the goods lack the currency and credit wherewith to buy the goods. They lack the currency and credit mainly because it has been driven out of circulation. The driving campaign has been deliberately carried out, with the "liquidation" hounds all the while barking at the heels of frightened business. So far as the United States had any private banking policy in 1930 and in 1931, it was a policy of deflation. So far as the United States had any official public policy during those years, it was a policy of deflation. Until recently, the leadership of the banks and of the politicians was mainly leadership backwards. Business was forced to retreat in disorder, supplied all the while with enough man-power and munitions and equipment to win the war. Those in command piously accepted defeat, convinced apparently that the suffering was good for us, and that, in any event, it was foreordained and nothing could be done about it. They fervently believed in "the economics of original sin."

Yet every day since the stock-market crash in 1929, the United States, regardless of events in any other part of the world, possessed every material requisite for sustaining prices, production, profits and employment. We had no productive powers in 1929 that we did not have in 1930 and in 1931. All we lacked at any time was the sense to use our available powers. These powers cannot function without the use of adequate bank credit. But adequate bank credit does not come into being automatically. It is not a product of *laissez-faire*. Once a depression is well under way, the needed credit does not come to the rescue of business, as long as business relies on "rugged individualism"; for each rugged individual—each bank, each corporation, each consumer—in pursuit of self-interest, does precisely what makes the situation worse for business as a whole.

It is folly to turn the whole job over to the "lazy fairies."

The goal is clear and the path is clear. By collective action, which necessarily means federal action, we should put into use at once enough bank credit to restore the price-level of 1926-1928. This course would inevitably put most of the unemployed back to work, and relieve charity of the load which evidently it will not carry, and which possibly it cannot carry. Any so-called "economy" program which renders this course impossible is false economy. The immediate program should involve an increase of national debt, but no increase of taxes. An added debt of several billion dollars would not interfere with prosperity. We proved that in the years from 1923 to 1928. And once we have restored prosperity, we can retire the national debt at the rate of nearly a billion a year without hurting business. We have also proved that.

Credit inflation, carried merely to the extent of undoing the deflation of the past three years, would automatically relieve all debtors—all farmers and householders struggling hopelessly under mortgage indebtedness and all corporations equally hopeless under bonded indebtedness—of the unjust and intolerable part of their debt burdens, now fully eighty billions, which have been heaped upon them by price deflation. Such a course, moreover, would avert labor troubles by automatically reducing real wages without reducing dollar wages. It would bring money out of hoarding, without the ballyhoo campaigns which, as any psychologist might have predicted, have done more harm than good. It would restore the values of bank assets and thereby virtually put a stop, for the time being, to bank failures. It would increase the volume of production to the value of at least twenty billions a year, thus providing the real wealth out of which all debts and all taxes are paid, in so far as they ever are paid. On the other hand, without controlled counter-deflation, we face the certainty of widespread repudiation of debts, with incalculable resultant losses, material and moral. We face, in addition, the possibility of some kind of destructive, radical action. The stand-patters are the best friends of Bolshevism.

The only valid objection to the proposed course of action is that it might get out of control. But should we be afraid to create *enough* purchasing power to put men back to work, solely for fear of creating too much? There is danger of overeating, but no physician ever advocated malnutrition, solely for fear that a patient who ate enough might possibly eat too much. For over two years, the United States has been suffering from monetary malnutrition.

Stabilization through Regulation of Investment

By H. S. PERSON
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THE PROPOSITION which I offer for your consideration in the discussion this evening is this: that as one means of avoidance of depression there should be social regulation, presumably through a central economic planning agency, of the rate and amount of investment of new capital in industry.

First let me say a parenthetical word or two about such regulation through a planning agency. A great many lines of action looking toward avoidance of depression are being proposed these days. Most of them have merit; probably many of them should be adopted, not as things in themselves, but only as parts of a well-rounded plan of action directed toward the accomplishment of the determined purpose. This well-rounded plan of action should be flexible and adjustable, to meet variations in the conditions governing regularization of industry. Presumably under one set of conditions one element should be emphasized, and under another, some other element. Let us assume that our judgments approve Mr. Jordan's proposition concerning new fiscal policy, Mr. Foster's proposition concerning new money and credit policy, my proposition concerning regulation of capital investment, and half a dozen other propositions which might be advanced. Such approval does not mean to me that we should promptly pass a series of acts, unrelated one to another, putting each proposal upon the statute books. That clumsy method of attempting to solve the problems that always arise out of progress is one of the causes of our troubles. If we as a people approve these propositions, the approval should be in the nature of recommendations for their consideration by some representative planning agency which would take all into consideration, give them their respective weights and incorporate them into some integrated system of control of which the object should be the elimination of depressions.

I emphasize this thought because I have seen so many instances in private industry of alert managers who, desirous of improving their managements, send their engineers and executives out on tours of inspection to get suggestions regarding methods of improvement. These observers return and describe the many excellent things they have seen. These are considered one at a time and adopted. Then in the course of time it is discovered that the expected improvement in management has not been realized. It is because the ideas or procedures adopted have not been combined by a planning unit into a flexible, integrated system of related mechanisms, adjusted to the particular situation and adjustable to changing situations.

Therefore in proposing regulation of investment of new capital in industry, I propose it for consideration as one element of authority to be combined with other elements in social-economic planning.

I should add that my picture of social-economic planning is not one of detailed control of the processes of industry, but of such a control of the environment within which individual business is conducted that the exercise of individual initiative and discretion leads to achievement of the desired social purpose. In the best managed private enterprises we have illustrations of how individual initiative and creative effort may be stimulated and given large opportunity, and yet guided along lines which achieve the objective of the planning unit.

There appears to be pretty general acknowledgment that we have developed our total industrial plant more rapidly than we have learned how to manage it and to dispose of its products in a regular manner. This is the judgment of students and of nearly all proprietors and managers with whom I have talked. If the latter do not presume to know about the condition of industry as a whole, at least each is certain with respect to his own industry. Each is thinking of course in terms of his own competition, sales, percentage of capacity utilized and the various claims of his total investment on the gross profits of the limited capacity utilized.

We are in a new economy; what Simon Patten called a surplus as contrasted with a deficit economy. A few years back some were so bold as prematurely to speak of a "new era of prosperity." They should have proclaimed a "new era of perplexity." A technological advance which, between 1920 and 1928, increased physical productivity over 50 per cent with an actual decrease in the number of workers employed should have been appraised as certain to cause troubles for our distribution system.

We have such a quantity of capital already accumulated, our annual income in times of normal activity is so great, and the uneven distribution of the latter gives so many income-receivers such a surplus above consumption needs to use for new investment, that we are enlarging our collective plant beyond the point of our capacity[2] to dispose of the output through existing channels of consumption. It is doubtful whether any measures adopted solely for the purpose of increasing consumer purchasing power can be permanently effective without an accompanying regulation of the rate of enlargement of our productive capacity.

Instead of regulating the rate of enlargement we have permitted mental attitudes and institutions to develop which accelerate it. The high rewards of "unearned income" in the frontier industry of a not very distant past have developed a predisposition for spontaneous saving and investment. The corporate form of organization makes investment easy, although the absence of adequate data concerning corporations makes wise investment difficult. The development of investment banking with its high-pressure selling methods is a powerful force which adds non-spontaneous to spontaneous saving and investment. And the susceptibility to all these influences is the greater because investment and ownership have been separated from the sobering responsibility of actual management.

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[2] See Department of Commerce charts, p. 94.

The consequence is oversaving, overinvestment, overproductive capacity, and an insupportable overhead of fixed charges—not with respect to social need and possible effective demand, but with respect to the actual demand which the price system permits to be effective. The normal consequence of improved technology should be progressively lower prices in terms of an inflexible labor-price system and workers' income, or progressively higher wages in terms of an inflexible commodity-price system; but the actual workings of a private property and price system are such that the efforts of enterprisers are directed toward maintaining both high commodity prices and low wages. Effective purchasing power of consumers fails to keep in balance with the mounting total value of increasing productivity, and by necessity the industrial processing comes periodically to a standstill in order that temporary readjustments may be made by the brutal forces of unemployment, insolvency and foreclosure.

Even between these periodic depressions the rate of investment in new equipment creates serious problems. From 1920 to 1928, during a period of unparalleled activity and productivity, the net reduction in employed workers was some 5 per cent: a gradual cumulative pushing of skilled workers into the ranks of navvy labor, of navvy labor into the ranks of the unemployed, and of small proprietors into the ranks of the proletariat.

Perhaps the most threatening consequence of overinvestment is the compulsion to sabotage by ownership. Not only is the national plant shut down periodically for readjustments through depression, but continually equipment is worked far below capacity. It is an overconservative estimate that present equipment could turn out double the product of its best past record; I believe triple, and perhaps quadruple the product would be nearer the fact. One consequence of this is that neither the economic security nor the social welfare offered by creative engineering technology is realized.

The stability of present ownership itself is threatened. The greatest concern of industry today, especially of large corporations with huge capital investments, is that equity values cannot be maintained against the forces of advancing technology by any sabotage within the capacity of unorganized industry. Leaders of industry are thoroughly alarmed, not merely for the moment, which explains their applause of the use of public funds to shore up values, but also with respect to the long run, which explains what we generously call a new breadth of vision in their advocacy of industrial government and planning through extension of the powers of trade associations.

Not all leaders in business see the implications of their mounting investments in the new technology. The financiers do not. Mr. Wiggin represented them faithfully when at certain Senate committee hearings last fall he expressed the judgment that cycles of speculative activity and depression must go on forever, that nothing can be done about it, because business has no memory.

But the leaders of industry who are close to actual industrial processing, who live with the responsibility of technical management, do see more clearly. They realize that evolution in the application of technology has reached a point requiring the direction of an industrial government. They know that just as faculties of perception, memory, reasoning and planning have been developed in the internal managements of their enterprises, so also similar faculties can be developed for industry as a whole. That is the reason for the Swope, Harriman-Committee and Conley plans; they recognize both the necessity for and the technical practicability of collective planning.

And although with the skill of experienced salesmen they emphasize the evil consequences of unemployment and offer their plans as means of reducing unemployment, the significant common feature of their plans is relief from the restrictions of anti-trust legislation in order that the various industries may organize for self-government. Although not developed at length in any of the plans, the implications of this are clear: control of and restriction of new investment; calculated and apportioned production; price agreements; and, if necessary to maintain prices, restricted production.

I refer to these plans of industrialists, not because I approve them, but because I believe they carry internal evidence that leaders of industry are coming to the conclusion that, among other things, regulation of new investment is essential. In that I agree with them. I disagree with them, first as to the ultimate purposes of such regulation, and second, as to the agency of regulation.

It seems to me that the motives and purposes of industrial leaders were most frankly expressed by Myron C. Taylor, Chairman of the Board of the United States Steel Corporation, in his Boston address of March 24, an address which has not received the attention it merits. Mr. Taylor does not advocate national planning. The experience of his industry apparently leads him to believe that formal sanction to have a government in an industry is not necessary. What he does desire, however, is identical with what is sought by the other industrialists through planning. He said, "Controlled production may be expected to come about automatically as our surplus stocks become exhausted and as competition, spurred by necessity, discards obsolescent equipment and adopts justifiable price control that sacrifices some part of production volume to secure reasonable price levels for commodities"; and he went on to say that he could not see how the accompanying reorganization, mechanization and redistribution of work could keep all workers now in industrial centers occupied, and that many would have to return to the land.

I cannot agree with this motive and means of regularization, even though it includes measurement and regulation of investment and production, because its primary object is maintenance of the values of the existing overhead and its primary means is a retreat from a surplus toward a deficit economy.

But I do believe that increasing needs should be calculated, growing demands measured, and a plan of industrial development constructed which would establish more firmly and make more manageable this surplus economy which we do not yet know how to manage. The goal should be a well-distributed plenty for all, earned by a regularized industry which offers continuous work for every willing worker. This would be promoted by a regulation of investment, the nature of which would be determined by the motive and the objective. The agency for the planning should represent the consuming society, not the producing groups within society. Production should be to impartially measured demand. This concept is expressed in the LaFollette and Person bills which have been introduced in the present Congress.

I recognize difficulties in the regulation of investment, even though it be indirect. The principal one raises the question as to whether it could be done without creating quasi-monopolies for the investments already in industry. Perhaps there would be a tendency in that direction—toward limited-dividend corporations. It would seem, however, that the social interest would be better served by quasi-monopolies under social planning and control, than quasi-monopolies unrestricted, as is proposed by the plans of industrialists.

That is enough concerning difficulties. If the proposition to regulate investment merits any attention whatsoever, discussion can be trusted to discover and explore the difficulties involved.

Discussion

Eleanor Lansing Dulles.[8] The three very interesting papers presented to this group during the afternoon session differ markedly in their emphasis, but they are alike in that they recommend substantial interference in present-day economic relations. It is probable that everyone here agrees as to the need of such interference, but there is room for considerable argument as to the direction it should take.

The suggestions made by Mr. Person call for a slow and gradual development of methods of control in the field of investment. It is probable that his program is not capable of the early realization which is claimed for at least some parts of the suggestions put forward by Mr. Jordan and Mr. Foster. There is no doubt, on the other hand, that some guidance and restriction of the movement of long-term capital must be worked out. The limits to rapid progress circumscribe action very narrowly because there is no centralized body which is charged with this responsibility. Governmental interference is practically impossible and the movements of capital escape the restrictions which laws attempt to set.

Even more fundamental than this, however, is the need for industrial plans which will make the intelligent guidance of investment a feasible measure. This may be achieved in the distant future, and when it is a reality, the need for investment restriction will largely disappear.

Mr. Jordan proposes a different form of economic control. He suggests progressive taxation of such a nature that it will serve two ends. It will repress speculative excesses and will redistribute wealth in a way which might steady buying power. His suggestions have one advantage in particular. The government has the power and the mechanisms for putting the plan into operation if the public expresses its desire in an emphatic way. There is, thus, some hope of early action if the depression has aroused a nation which has been oblivious to such considerations for a long period.

In my opinion, the taxation plan holds out real advantages, particularly insofar as it can put a break on speculation. The direct advantages through the equalizing of purchasing power are much less certain. It is difficult to say how individuals will save or spend their money. The velocity of circulation of incomes is still veiled in mystery, and there is no guarantee that the flow of purchasing power will be more rational simply because it is more evenly divided. Bank credit will for years to come be the determining factor in controlling, *saving* and investing.

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[8] Industrial Research Department, Wharton School of Finance and Commerce, University of Pennsylvania, Pa. Miss Dulles is known for special research work for the Bank of International Settlements and for her book "The French Franc."

Mr. Foster's suggestions are capable of immediate realization with the one serious qualification that, if put into operation they tend to become transformed into quite different influences from those which are at first operative. Thus, inflation is always possible, at the will of the government, but rapid inflation runs automatically into deflation as confidence melts before the onslaught of a volume of cheap money. This has been the experience in Germany, and even in France, where inflation took on milder proportions.

The expansion of purchasing power which Mr. Foster suggests would, in fact, be in amounts similar to those in Germany in 1922. In urging the return to the purchasing power of 1929—and this is the suggestion about to be brought before Congress—he is proposing an increase of approximately 50 per cent in the price-level. It would be hard to find a case in history where purchasing power has increased more than 20 per cent a year without running into the excesses of wild depreciation. A 5 or 10 per cent increase in the volume of money might perhaps be checked in time; more than that is sure to excite a wild speculative boom and collapse.

I am forced to disagree with Mr. Foster's statement that credit is entirely within our control. Even the less volatile forms of bank credit are hard to curb when prices are moving upward, and the non-bank credit which was so freely used during the stock-market boom escapes entirely from the usual checks and restrictions. If this is true, then a marked increase of the monetary base may allow a terrific multiplication of credit instruments which lie quite outside the limits which have been set for more conventional forms of purchasing power.

It seems to me that inflationary programs ignore the true nature of modern purchasing power. This is made up very largely of credit which in turn depends on confidence. Thus, while it is possible to increase the number of units of purchasing power by deliberate intervention, it is not possible to maintain the value of the aggregate if confidence collapses. The grave danger inherent in inflation is, therefore, deflation.

The arguments against a rapid expansion of purchasing power at the present time are in the main five.

1. Such a policy is calculated to bring about a speculative boom followed by collapse.
2. The banking system would become strained again, and there might be a new wave of failures.
3. The American price-level would become partially divorced from world prices, and the nation would lose, through further defaults on foreign investments, and also probably in foreign commerce.
4. The spending of the new money would very likely be directed unwisely and might accentuate errors in production, or prolong the life of uneconomic units.
5. An inflationary program would distract attention from certain changes in taxation, production and foreign relations which are urgently needed.

The great need of the present time is a real basis for confidence and stability of values, not for further price changes. Confidence cannot come until the War debt situation is cleared up. Stability can only be achieved by strengthening the banking system at every possible point. These two lines of attack energetically undertaken, together with industrial readjustments at a number of points, should build a foundation for lasting recovery.

David Cushman Coyle.[4] There are certain criteria by which we may judge the soundness of any engineering project involving, as such projects usually do, the interactions of machines and men. I propose to examine briefly the proposals which we have heard in regard to various tests of soundness, the validity of which is self-evident but sometimes overlooked.

The first test is this: Does the proposal aim in the desired direction? It may be stated, without repeating the argument, that any sound plan must aim at this one specific objective: It must divert a sufficient fraction of the total income from investment in the over-equipment of industry, into spending for goods to be consumed. It has been made clear that business can no more run on too much capital than a gasoline engine on too much gasoline. Mr. Jordan and Dr. Person have emphasized the fact that this is the key log of the jam. No other maladjustment can be corrected until this one sticking point has been taken care of. Both their proposals aim directly at this necessary objective. Mr. Foster proposes means to increase spending, but is not clear how he would prevent a new orgy of overinvestment. Mr. Foster's is not a plan for stabilizing business, but a statement of the necessary measures to bring on recovery from depression. The other two strike at the heart of the problem of making business permanently sound.

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[4] Consulting Engineer, New York, N. Y.

The second criterion is the bootstraps test. Do the secondary effects cancel the primary effect of the project, or do they reinforce it? The proposals of Mr. Jordan and Dr. Person pass this test with flying colors. Not only will the artificial restriction of free capital add to buying power by the direct transfer of money from investors to consumers, it will also, by cutting off the exuberant growth of new plant which occurs in good times, relieve business of the poisonous blight of overequipment. The overhead expense, which normally rises until it eats up the profit and ruins business, will be restrained, and higher wages and dividends will be available for a further increase of buying power. The overall efficiency of the organism is increased, therefore, not only by preventing the wasteful construction of superfluous machinery, but also by warding off the waste of paralysis.

In other ways, too, the secondary effects will reinforce the primary. The liquidation of indigestible masses of unspent money will not only relieve business of poison, it will involve decentralization of ownership. Dividends will be spread more widely over the smaller incomes, where they will be added to buying power. The effect of increased security will also tend to relieve the intense struggle to accumulate investments. The removal of incentive from the higher incomes will tend to increase the spending of the well-to-do, and further spread the ownership of business among those of smaller income. In all these ways the effect of limiting investment will be cumulative, tending to a larger market for goods and more intensive use of the available machinery.

The third test of soundness is connected with a limitation of human intelligence. How much prophecy will be required to operate the proposed mechanism? If it were necessary, on setting out in an automobile, to set the wheel mechanism in advance for all the motions it is to make, the chances of error would be overwhelming. In the same way an economic device which requires someone to make a correct prediction is less practical than one which will produce the desired result without prediction. We have plenty of cause to know that the type of man who can ordinarily be chosen for a place of high authority is not usually a very good guesser. Examples without end are known to all of us here.

It is at this criterion that Mr. Jordan's plan begins to draw ahead of Dr. Person's. Any agency of the state which proposes to regulate investment may find itself faced with the necessity of judging the probable future of business in particular and in general. If it is highly centralized the consequences of its errors may be catastrophic. On the other hand, if investment is to be restricted by means of the tax system, almost no prophecy whatever is required. Whenever business is profitable and incomes are high, it takes no prophet to realize that a drastic income tax will postpone the day when overbuilding brings on paralysis. When times are hard, it needs no genius to recognize that taxes on the rich will help to keep money circulating through the shrunken arteries of business.

In view of the well-known fallibility of human prediction, the control of overinvestment by fiscal means has a technical advantage over its control by a board of experts. It may well be that the labors of expert boards will best be restricted to subsidiary problems such as steering the expansion and contraction of credit. This is one of several necessary functions that cannot be wholly divorced from prophecy, and that therefore cannot be counted on to be of more than secondary value in a program of stabilization.

A fourth criterion of soundness is expressed by the question: Will the administration of a proposed program call for more than normal courage and honesty? Periods of national exaltation such as that now reported in Russia are not lasting. Normally any system will run as a dull routine, with only sporadic attention from the public. How well will it stand against gusts of ill-informed public obloquy such as that which fell upon the Federal Reserve when it made a futile attempt to control the late inflation? And how well will it resist the constant pressure of personal influence? It is common experience that any body which is in a position to distribute opportunities to hopeful aspirants, as it becomes more centralized, tends to become more subject to nepotism, politics and graft. We cannot avoid the necessity of some exercise of centralized regulatory power, but the serious secondary effects that usually accompany it should not be overlooked. In regard to this test of soundness Mr. Jordan's plan again has something of an advantage over Dr. Person's. The income-tax authorities are not engaged in allocation, which requires a new interpretation of policy in each case, but in collection, according to a policy once for all laid down by Congress. The comparative difficulty of escaping this law is indicated by the efforts of large taxpayers to prevent its passage. It may be noted also that when the government went after Al Capone, it chose the income-tax law as the most effective method of attack. Moreover, as the effect of a drastic supertax will be to dissipate the large fortunes, the few remaining will have an increasingly high visibility.

The final test of soundness to which I wish to call attention is that of dynamics. Is there available any power strong enough to put the proposed plan into action? The first factor of power is economic interest. The diversion of money from capital overinvestment to consumption of goods is vitally necessary to industry and commerce, to the professions, to labor and the farmers, to producers, technicians, distributors, consumers. That is an extremely powerful preponderance of interest. On the other side stands uncontrolled finance, which causes and lives by the instability of business. Finance has the whip hand, and there, essentially, is the focus of the disease that paralyzes the whole system. But if the true interests of all parties can be made clear, the situation is loaded for a shift of the center of power. If the recent happenings in Congress are examined in the light of these facts, it will be apparent that it is this very conflict which has been there struggling to find expression.

The second factor of power, therefore, is the possibility of making the issue clear. Here Mr. Jordan's plan has an advantage against the field. Experience during the past eight months has proved that a high percentage of intelligent business men are able to see the soundness of this plan, and to remember it afterwards. All its factors are familiar; only their relationship has been obscure. There is one thing to be done, the imposition of a tax, and everybody knows it can be done with the Congressmen available, if business demands it. The way to burn a hole through a steel plate is to focus the flame on a single point. The League for Independent Political Action has proposed a plan having ninety-four points. The tactical difference is of critical importance as regards the chances of getting real action. Here again it is significant that it is on the question of taxation that the irrepressible conflict has first begun to take shape in Washington.

The third factor of power is the available emotional force which will favor or oppose a particular project. Here the advantage is with these plans for controlling finance as against any plan which looks toward socialism. These plans, particularly Mr. Jordan's, lead toward decentralization of ownership and initiative, which is what the American people want in their hearts, if only they can find a way to get to it without disaster. Here it appears as part and parcel of a method of making the economic system run. The desire in our people for widespread freedom and prosperity combined waits only for the assurance that these are economically sound and not the road to ruin. Everything depends on whether we can get the issue clear before the light of reason is smothered in the passions of disorder and violence.

What has been said here today means that the time has passed for soft words and polite phrases. The death grip of finance threatens to strangle our productive power into final collapse. If we allow that, what we are seeing in our generation is the death of Western culture and the beginning of the Dark Ages. Against that we must fight. It is for us here, and those like us, to bring in the new culture that is now struggling to be born. The grip of finance must be loosened from the throat of business. It will be done only by a bitter struggle. We who must see this crisis through are called upon to show that we have the capacity, the vitality and the courage to fight for our life and win.

Paul Gourrich.[5] The interesting ideas of Mr. Person, the directness, although somewhat emphasized monism, of Mr. Foster's thesis of inflation, in which he lays so much stress on its healing charms without mentioning the bad scars it leaves on the body economic, and the daring revelations of Mr. Jordan give much food for thought and controversy. But with a large five-and-ten-cent store reaching out to the two-dime class, on the one hand, and stock-exchange prices moving toward variety chain-store levels, on the other, one has neither the disposition nor the time for controversy. With conditions as they are, our economic problems seem to have passed from the quiet chambers of academic gatherings into the noisy street.

It is perhaps a peculiar paradox that economists have lost a good part of their former popularity (and with some reason) at the very time when economic discussions are all over the place, so practical and urgent have the issues become! Yet some broad theoretical principles are necessary to the understanding of our troubles and the formulation of remedies by which our grave affliction may be overcome. I say "grave affliction" because some of the symptoms, such as the disastrous levels of raw-material prices, have no precedent in recorded economic history back to the French Revolution. Some of our raw materials are selling barely above out-of-pocket expenses for packing, shipping and insurance.

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[5] Banker, New York, N. Y.

What Mr. Jordan strikingly calls "capital dissipation to absorb the output," and what Mr. Person more mildly terms "the cessation to satisfy the claims of social income" of capital values, profits, prices, interest and rent, with the resulting loss of savings, want and distress, and what Mr. Foster by way of a cure prescribes—inflation—are some of the more important and old manifestations of a peculiar, deep-seated economic paradox. The unhappy race of so called *homo sapiens* has perhaps had to wrestle with this ever since our grandmother, Eve, after having eaten of the forbidden fruit, selected to live a life of freedom and adventure rather than one of the blissful quietness of Eden.

Progress—the urge of life—by definition means the better utilization of manpower hours. Since the shortening of the working day in an active, free and ambitious community has many limitations, progress also means an ever better quality of goods and a continuous downward curve of prices. But a downward curve of prices means financial strangulation and death in a *monetary and credit business economy* entangled by a large proportion of fixed or semi-fixed costs. One of the main purposes of credit and banking structures has been to overcome the process of deflation *inherent in progress*. They endeavor by a system of exploitation of human confidence (shall one say credulity, the ability to forgive and forget) to pull up prices that naturally tend downward, and thus overcome the otherwise deadening effects of bookkeeping writeoffs on the march of progress. The present threat of debasement of the standard of money, gold, so as to escape the choking fumes of deflation, is not altogether new. A few centuries ago just such a situation confronted England when the pound sterling, at that time a silver pound, was debased by reducing its content.

Mr. Foster told you about the magic effects of inflation; and we must recognize that under the wing of the Glass-Steagall Bill we have gone a long way toward inflation preparedness. Inflation may be inevitable, but why be ecstatic about it? If it goes far enough, it will add the expropriation of savings of the masses when the crisis is over to the dissipation of capital which occurs during crises, as described by Mr. Jordan. Let us not fool ourselves and lose our sense of proportion. Sound credit is based on, and is an outgrowth of, production in process, or wealth in circulation. It cannot be created by mere multiplication of credit instruments, either by the indirect method of expansion of governmental debt or the more direct method of manufacturing money. Receiverships and default, even if partial, are always costly. They destroy faith—confidence—which is the basis of our civilization. This statement is not a platitude. In 1929 the world, on a gold basis of $11,500,000,000, erected a credit structure of $129,000,000,000. This credit structure included only deposits and money in circulation. The banking structure had nine cents of gold for every dollar outstanding. What was the rest if not confidence and trust?

Perhaps it was the early realization of the all importance of this elusive factor and the need to preserve confidence at all costs that resulted in the old Jewish law by which debts were canceled periodically. In the 3,500 years since the formulation of the Mosaic Laws, we have apparently not learned how to conduct our business more wisely than our elders. Whether by inflation or outright default, we have been engaged throughout the ages in partial or full cancellation of instruments of indebtedness and other capital values at irregularly recurrent periods, sometimes called cycles or crises. Whether this has been done with the quiet resignation, humility and regrets of certain central European nations after the World War, with the vengeance of one European power, or with an almost crusading spirit, inflation and other forms of default have not attempted to correct the fundamentals out of which defaults grow. Some time such an attempt will have to be made.

All credit inflation is temporary. If it goes all the way of financial debauch, as was the case prior to the Revolution in France and in a number of countries after the World War, it comes to an end rather sooner than later. If convertibility is maintained, every so many years such inflation runs into the blind alley of what Mr. Person described as "a periodic overinvestment in capital goods," an unbalance of the ability to produce and the ability to consume, with the resulting dissipation or expropriation of capital. This has been the price of our adventurous economy. Can we remain forever in this adolescent and romantic stage? Are we not too big and a bit too old for it?

Mr. Jordan suggests a method of bloodletting, the diversion of surpluses into the production of noncompetitive social services. He and I are here on common grounds. I have been advocating the creation of a Public Welfare and Improvement Industry which, among other things, would serve as an "absorbent of victims of technological unemployment"—a phenomenon of a more or less permanent nature. I am not quite sure that the method of taxation suggested by Mr. Jordan would best accomplish the purpose. We do not know which is the channel of misinvestment—the several thousand rich, or the fifteen to twenty million investors, speculators or gamblers—call them what you please—who hold ten or twenty shares of stock each. Neither do we know who in the ultimate analysis pays any taxes including surtaxes. Henry George used to think that real-estate taxes could be made to be paid by the owners of real estate. All of us know now that it is the tenant that pays them, and we know further that all taxes are paid out of the only pot there is, the national income, by the consumers as a whole sharing their food, clothing, etc., with the tax collector and his government colleagues. A non-pyramided sales tax, or preferably an excise tax, has shortcomings, to be sure, but it also has many features in its favor. Among others it does not tend to reduce materially the taxable matter, nor unduly to discourage business enterprise on which, let us keep well in mind, *our system of economy rests.* Inflationary systems of banking and credits, as I have earlier endeavored to show sketchily, have been created for the rescue of this same business enterprise. We are frequently apt to forget that our economic development is primarily expressed in the growth of capital. In 1929, for instance, it required about $8,000 of capital (national wealth) to provide employment for each of the roughly 50,000,000 people then gainfully employed in this country. If we are to keep people employed and also keep the necessary flow and formation of capital undisturbed, we may have to look to other methods than an excessive income tax, which tends to discourage accumulation of capital and sometimes causes its outright destruction, irrespective of the owners of the capital—individuals or the state.

Mr. Person's suggestion of control of investments deserves serious study. No doubt misinvestments are one of the most important vehicles through which the unbalance of the economic machinery is expressed. However, as in other obvious matters we must be careful not to destroy the good—the dynamic forces of invention—with the evil.

Our little experiment with prohibition has shown that we can create new and worse evils. We are apt to isolate one element out of the organic whole, conclusively show its harmfulness and condemn it, without realizing that we may be condemning the organically inseparable, desirable elements of the complex. In life what counts is the balance of influences, the good over the bad. To determine this balance we have to visualize the new train of complexes that a reform would bring about and then decide whether they create a greater good than now exists. The worst kind of a reform is the one that cripples an existing system by removing some of its essential machinery, without removing the system itself or providing proper substitutes for what has been removed. Parenthetically, and as a digression, I would suggest that Washington in its endless investigations may profitably take this into consideration.

If we are not to stifle the march of progress, that is, the growth of capital, we must have machinery for preservation of existing capital and formation of the new. To be specific, automobiles, telephones, electricity, aeroplanes, even railroads in their time, were nothing but fantastic dreams which no sober investor of the time would support. Would a governmental body have shown more perspicacity? Would a governmental body go into the development of remote foreign territories for other than political motives? Let me make it clear here and now that I have no quarrel with the principle of "control" of investments. Just how and by whom, is the question.

We used to think that we were in a depression, and then in a crisis. Now there is a growing suspicion that we are in a critical phase of the history of the human race; that we are perhaps writing the last chapter in the epoch that started with the French Revolution, which gave the world individual rights and laid a foundation for the subsequent industrial revolution. Modern democracies, which sprang into existence for the purpose, among others, of keeping the extravagant expenditures of kings under control and thereby securing a greater amount of freedom for the relieved taxpayer, have, by a peculiar process of metamorphosis, become powerful instruments for raiding the taxpayer's pocketbook and robbing him of the degree of liberty which he acquired with the birth of democracy. In this country, for instance, governmental expenditures are rising to nearly one-third of the total national income, and it is much worse in other countries. State ownership is not reached when 100 per cent of the producer's dollar goes to the government, but is reached sooner that at that point.

What will be the precise sociological changes in the future is of course hazardous to prophesy, as it is impossible to lift even a small corner of the curtain suspended over the unknown future. But in these days of general doubt and disappointment, it may be worth while to review a few of the high spots of the enormous progress made by our civilization in the last century and a half. A local picture shows that since the French Revolution, the population of the United States has increased more than thirty times and that of Greater New York 250 times. But these are merely conspicuous examples of the growth of the only real unit there is, viz., world economy. Relatively speaking, the development of the backward countries from a state of semi-savagery to a civilized state is even more spectacular than that of New York.

Today this world of ours has two billion people spread over a land area of fifty-one million square miles. A network of railroads covers over three-quarters of a million miles and transported in 1929 almost four billion tons of freight, that is, about two tons per capita. Something like 125 pounds of steel were consumed per inhabitant, and 300 billion kilowatt hours, or 150 per capita, were burned up. To realize what electrical power meant in the progress toward industrial mechanization as well as a comfort of living unknown even in the palaces of Versailles and Fontainebleau, it may be worth while to mention that the total mechanical horsepower installed in this country has a pulling power considerably in excess of that possessed by all the men in the world if they were working as slaves. What an impossible dream for even the most imaginative prophets of the Bible!

Of course, it is not only the pulling power but the nature, form and quality of this power—electric lights, radios, etc.—that counts.

In 1929, this world was doing an international trade one way of $100,000,000 per day, or $17 per capita per annum, a figure almost as large as the per capita annual income of some of the backward countries. Today this trade, as well as most of the other indices of economic activity, has dropped from 40 to 50 per cent. This race of ours is closely knitted together by 33,000,000 telephones which can now be connected over the major part of the planet, and by a postal service which before the depression handled eighty billion pieces of mail per annum, or forty pieces per capita. These and many other figures that may be cited are an index of the amazing achievements since the breakdown of the feudal system. They can only be understood in the light of the lowly beginnings of our race which fought in the jungle like allied species —apes, etc.—for food and safety. No single nation has been responsible for this progress. It has been the genius of the race to devise the modern system of communication and co-operation which has practically obliterated national boundaries. Each and every product today has required the efforts of each and every people of the world. For instance, the paper on which this is written has been produced by workingmen who drink coffee grown in Brazil, ride in automobiles or buses which use East Indian rubber, etc., *ad infinitum*. So inter-related and interwoven has the whole economic structure become that it may sound like a platitude, although it is too frequently forgotten, that international economy is a molecular, and not a mechanically divisible, structure. It cannot maintain its present heights if it is dislocated and cut up. It will survive and move to greater heights if the people become world minded.

If time permits, I should like to end my observations with a few suggestions which would supplement those of the distinguished speakers.

1. The large fixed or semi-fixed items of costs make it impossible to reduce expenses in proportion to prices. Yet we must cut the coat to fit the cloth. Present methods, whereby the manufacturer undertakes not only to process goods but to market at fixed prices the various proportions of the products belonging to the various participants in production, from the bondholder and landlord down to the wage earner, make it impossible to resume production when the level of prices is catastrophically shrinking. Our society is basically nothing but a conglomeration, organically knitted together, of industrial co-operatives, in which the participants are partners, although not necessarily equal partners. As such we all produce and earn *not* dollars, but steel, ton miles, automobiles, kilowatt hours, shoes, etc. If we were to be paid in percentages of the final product produced, that is, in kind or due bills, and had organized markets to sell such goods, or clearing houses to exchange them, we could immediately absorb at least some of the unemployed who would produce the things they consume. The economic process is nothing but a matter of filling warehouses (production) and emptying them (consumption). All the producers and participants in production produce all the *things they themselves consume*. The method suggested would, in addition, lessen the disruptive

influence of the present price inequalities that exist.

2. If in accordance with this system of gross profit-sharing, our books were kept in terms not only of dollars, but in terms of physical goods produced, we should have of necessity, as I have endeavored to show in studies of specific industries, a better visualization of the real costs, including depreciation, obsolescence and other charges. These are today taken out of the book assets by the inexorable market in huge chunks of deadwood, instead of piecemeal annually, as would be the case under the bookkeeping methods that more nearly tell the truth. All this may sound a bit literary and academic, and so perhaps it is, but the right theory is still the only instrument in our possession.

As a practical, immediate proposition, I should like to summarize some of the concrete suggestions which I have made in some of my writings on this subject:

1. The formation of a National Economic Board. This Board should rest on our trade organizations. These in my opinion are today the only bodies on which an effective system of co-operative individualism could be rapidly built. In another place, I defined co-operative individualism as "a happy blend of the dynamic power of individualism and the equipoise of social self-control." The Board would immediately set to work to: (a) Find out how to employ all the employable people, if need be by taxing each one of the employed into taking on an assistant. Ours is a *paper civilization* based on confidence and trust. We must re-establish this confidence at any price if we are to achieve anything. Nothing but employment will apparently do the trick. After we have spread whatever employment there still is, and thus done away, to a large extent, with the most destructive and ugly expression of the present depression, viz., the fear of those who are still employed and the humiliation and sense of futility and despair of the unemployed, we can begin to plan on how to increase the economic activities and national income. (b) Find out how to overcome the price inequalities and their paralyzing effect on the utilization of our productive facilities, if need be by special equalization sales taxes. (c) Prepare plans for a speedy formation of a Public Welfare Industry.

2. An International Economic Council that would aim to stop the present process of decomposition of international economy and gradually rehabilitate it by stabilizing world currencies and world exchanges. This could be done by the resumption of international lending, under governmental auspices at least at the beginning, by the revision of international debts in accordance with the capacity to pay—a principle of which everybody speaks—and the capacity and willingness to receive—a principle which few care to mention—and by general liberalization of international economic intercourse.

The above is not what our so-called "natural" and "free" economist would endorse. But then I do not believe in the good graces of Nature. One of the most common natural phenomena which I have seen is death, and of course the human race is not ready to surrender to this kind of Nature. We do not need to.

Royal Meeker.[9] Virgil Jordan has presented a thought-provoking analysis of the causes and the cures for the present depression.

He attributes our economic woes to the hangover of "deficit-economy" ideas in a "surplus-economy" age. By "deficit economy" he evidently means a system of laborious production and niggardly consumption in which it is necessary for the great masses of men to work long hours at short wages to produce insufficient food, clothing, shelter and fuel to enable men to live in comfort or decency, even if total production is shared equally. By "surplus economy" he apparently means a system of power-machine mass production which has the potentiality of producing so abundantly that every worker who is willing and able to work can have all necessities, many comforts and some luxuries so that living becomes much more interesting and worth while than the ancient "struggle for existence." Under "surplus economy" men have surplus goods and leisure to think and develop arts instead of devoting their whole energy and waking lives to the business of keeping a hungry, shivering body and a dwarfed, starving soul linked together.

Mr. Jordan declares that "surplus economy" has broken down because modern improved methods of production have produced the surpluses but ancient unimproved habits of "saving" have prevented men from consuming the rich and varied products their ingenuity and industry have produced. Instead of enjoying a richer and more leisurely life men go on adding to the existing oversupply of plants and tools for producing more goods to be wasted.

Man, the rational animal, behaves in the most unreasonable manner. Making things which are not, or cannot be, used is inexcusable folly. Most of us have intellectual capacity sufficient to see this great truth after it is explained to us in words of one syllable or less. We disapprove of the "industrial systems" in some of our reformatories under which the inmates are made to build furniture, rugs, shoes and other things, not to be consumed, but to be torn apart so that the materials can be used to construct other useful but unused articles destined for dismemberment. Of course this absurdly irrational "industrial system" is not practiced extensively even in our absurdly irrational penal system. We must turn to our much praised and highly efficient competitive system of production for profits to find this brand of asininity flourishing in full flower.

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[9] With Professor Irving Fisher, New Haven, Conn.

The present-day system of production is, to a considerable extent, a Protean example of prison production for destruction—of business for the sake of being busy! We, as producers, produce more than we, as consumers, are permitted to consume, not more than we could consume and would consume if we received enough wages and other incomes to enable us to buy the goods we produce and need and desire to enjoy.

When the unbought goods we have produced (or have the capacity to produce) become a menace to business our busy-bee business men get still more busy. They do two things. They sell the surpluses abroad, and they bamboozle and browbeat our Senatorial Solons and Legislative Lycurguses at Washington into soaking on prohibitive protective tariffs so as to inhibit or prohibit foreign buyers from paying for the surplus products they buy.

The first achievement is called "capturing the foreign markets"; the second one, "protecting the domestic market."

To "capture the foreign markets," it is necessary for our big busy-bee business men to cut prices. The domestic buyer pays the bill so that for a time business booms and prosperity prospers—seemingly. But even with cut prices to induce foreigners to take our products off our hands at cost or less there is not enough "purchasing power" or "consuming power." Our big busy-bee business men "contact" our big busy-bee bankers to help them in their efforts to persuade or browbeat foreigners to buy larger quantities of things they do not want and cannot pay for. By means of bank loans and book credits foreign and domestic buyers are enabled to obtain quantities of our surplus goods without paying for them. This arrangement was hailed by our hard-headed captains of industry and finance as the final solution to the surplus production riddle of the Economic Sphinx.

In time, however, the solution comes to lack solvency. Selling on credit to buyers who have no means, present or prospective, of paying, or who have lost their ability to pay, becomes, after a time, indistinguishable from giving goods away. When this stage comes wild moans emanate from our big busy-bee business and banking boobs. They demand that the government do something to unfreeze "frozen assets." A "frozen asset" is something which would be perfectly good if it were good for anything. The plan is to have Uncle Sam accept the "frozen asset" as "collateral" for real money which he gives to the bank which is stuck with the said "frozen asset."

This process is known technically as "liquidating frozen assets."

Mr. Jordan has described in trenchant language, though somewhat inaccurately, the processes by which we have so skillfully landed ourselves in the middle of this slough of despond where we have been wallowing for the past two and a half years. He has told how our surplus products, both production goods and consumption goods, have been dissipated by giving them away to the Germans, the Latin Americans and other more or less willing, not to say eager, recipients of our bounty.

It should be emphasized that much vaster quantities of our surplus products have been given away by our abstemious business men to almoners right here at home. Instead of distributing the products of industry among the workers on all the things to be consumed, these products have gone in large part to the group of big business men. These big income receivers have "invested" a large part of their incomes in plants to produce more goods to be saved and "invested" until our farms and factories have become equipped to produce more goods of accepted kinds and styles than can be sold at remunerative prices.

In my opinion, Mr. Jordan overstresses the "deficit economy" of the past and the "surplus economy" of the present. Nevertheless, I agree with his analysis and conclusions in the main. The difference, he points out, is a difference of degree only. There have always been surpluses and deficits in production (and consumption) from the beginning of history. Without "surplus economy" it would have been impossible for the human race ever to have come down out of the tree tops and later to move out of their caves into tents and houses. Even in that dismal depression of a thousand years, known as the Middle Ages, there were surpluses to be seized by the robber barons and the racketeer kings. Never have *all* men had to work eighteen hours per day in order to starve and freeze respectably. Never have *all* men had all they really needed to eat, to wear and to enjoy. Always we have with us the poor. The niggardliness and the bounty of Nature are omnipresent. Always we have had scarcity and plenty, side by side. Simultaneously thousands have died of hunger and privation while hundreds have died of gluttony and Lucullian dissipation.

A few further criticisms and a gentle slam or two seem to be called for.

Mr. Jordan's explanation of the manner in which consumption and production always balance is utterly useless as an aid to stabilizing production. Of course everything that is produced is either consumed (economically or wastefully) or thrown away! No great illumination is shed on the pathway leading to the Heaven of Stabilization by uttering this truism as though it were a new discovery revealed by the magic of statistics.

Mr. Jordan sniffs at the economic planning concept because it is based upon a "deficit economy." He grants it may be all right for backward Russia, but there is no reason for trying it out in our super-efficient "surplus economy." It seems to me even more imperative to plan what we will produce when we have the means for producing than when we have not: to plan how the products shall be divided when we have products to divide than when we have nothing to divide.

After condemning economic planning as a "deficit" Mr. Jordan knocks us out of our seats by pulling his own amazing economic plan out of the stovepipe hat! He has condemned price fixing and especially the limitation of production with all the severity of the most pharisaical of the economic classicists. Then he blandly proposes to limit production and determine prices by the most staggeringly drastic system of taxation ever "conceived by the brain and hand of man." The "basic object of taxation," he says, must be to divert surplus individual incomes into consumption instead of investment. He would knock the props out from under private "productive" enterprises, investment houses and security markets by inaugurating huge long-term federal loans to the several states, to be loaned in turn by the states to municipalities presumably to carry out a gigantic public construction program of building sewers, public baseball parks, public schools, highways, bridges, tunnels, workers' houses and similar undertakings.

With the staggering evidence before us of the shocking incompetence, corruption and connivance at crime in our city governments, Mr. Jordan's proposal seems like an inept attempt to imitate Mr. Will Rogers.

To raise the money for his ambitious program Mr. Jordan calmly proposes to expropriate incomes above $100,000 and estates above $2,000,000. His taxation program is perfectly sound in principle, but it is too drastic to be of any value to those who are seeking a practical cure for this depression.

I think Mr. Jordan has failed to realize the possibilities of shorter working hours. This is merely a way of permitting workers to consume the leisure time created by modern machine mass production. It is just as necessary that the surplus time produced by power-machine production should be consumed economically instead of wastefully as that the surplus *products* should be so consumed.

I feel that the control of production through economic planning and credit control are much more practicable ways out of this depression than the revolutionary scheme of public works financed by confiscation.

I agree heartily with much of Mr. Jordan's brilliant analysis of our economic ills, as most modern economists do. His program for lifting our economic machine out of the ditch, however, strikes me as a mixture of economic Utopianism and political naïveté.

The National Management Association of Japan

The Japanese Branch of the Taylor Society Participates in Annual Convention

By MISS KIYO KOBAYASHI

THE ANNUAL convention of the National Management Association of Japan, in which our Branch participated, was held at Yokohama on May 6-9 at the prefectural office, with about 340 members attending. It was held under the auspices of the Kanagawa Chapter of the Association.

The convention opened with a plant inspection trip in and around the city. The vicinity is the most highly developed industrial center of East Japan, which gave the visitors a rare opportunity to see many excellent applications of scientific management in large-scale plants.

Of the ten papers presented, the following were by our Branch members:

Mr. R. Kaneko: A New Office-Routine Chart

Mr. O. Yamashita: Co-operation between Workshops in One Plant

Mr. T. Fuchi: Comparison of the Three Classifications of Brown, Cutter and Dewey; Dewey's Radio Classification

Mr. Y. Ueno: An Example of Micromotion Study; Analysis of "Kana" Typewriting Operation

Mr. Kaneko, the authority on office management in our country, demonstrated the shortcomings of the prevailing office-routine charts and added his own improvements which show the relation of each operation to others and to classes of operations.

Mr. Yamashita, Chief of the Mechanical Bureau of the Government Railways, quoted his own experience in securing the co-operation of each workshop through the organization of representative committees. His detailed explanation gave the audience excellent suggestive material for use in improving methods in their own organizations.

Mr. Fuchi emphasized the superiority of the decimal classification of Professor Dewey, and by way of illustration, added his own application to radio documents.

Mr. Ueno explained the method of micromotion study and analyzed the "Kana" typewriting operation. The illustrating motion-picture films drew much attention.

The afternoon session of the third day was devoted to addresses by Dr. Kamo, and Viscount Ohkohchi, the leading figures in industrial Japan.

Viscount Ohkohchi, who attended in the capacity of Counsellor of the Rationalization Bureau of the Department of Commerce and Industry, spoke on the "Increasing Efficiency in Manufacturing Industries." He called general attention to problems which have hitherto been given little notice as a means of lowering cost. Location of factory, the development of piecework and the utilization of by-products were skillfully explained so that the audience could recognize their importance.

Dr. Kamo, under the title of "General Trend of the World and the Future of Industrial Japan," preached on the fortitude which must be adopted by our industrialists in making their plans for operations in the future.

These two grand speeches made a deep impression upon the audience assembled with so much expectancy at the convention.

British Association for the Advancement of Science—York Meeting

August 31—September 7, 1932

The British Association seeks to promote general interest in science and its applications. Its annual meeting affords unique opportunity for conference and co-operation between scientific workers and others interested in all departments of science. Further information on the meeting can be secured from the Taylor Society office.

NECROLOGY

Harry Homer Myers

November 3, 1884 **March 19, 1932**

Dayton, Ohio

Dr. Myers was well known in the field of personnel management, which suffers a distinct loss in his going. His recent book, *Human Engineering,* will make permanent his unique philosophy of personnel relations.

Albert Thomas

June 15, 1878 **May 8, 1932**

Geneva, Switzerland

M. Thomas, Director of the International Labour Office since its foundation in 1920, had made the office a force in world affairs. His sudden death of a heart attack in the midst of strenuous effort in the campaign against unemployment is a serious blow to its work. M. Thomas had been a leader in the labor movement and a public figure of note in his native France for many years.

Reviews

Is Capitalism Doomed? By Lawrence Dennis, Harper & Brothers, New York and London, 1932, pages xi, 328.

Out of years of experience and study in the diplomatic and banking fields Mr. Dennis has written a striking book on our present economic dilemma. It is not a book of panaceas but of "realistic" rather than "wishful," to use the author's own terms, thinking on finance, agriculture, free trade and international co-operation, foreign and domestic investments and taxation. His purpose has not been definitely to answer the question his title raises, but he does show a tendency on the part of capitalists, individually and as a group, to bring about their own undoing. This is done at the same time that he points out the merits of capitalism and other systems of organization.

His attitude on foreign trade and investments lays him open to the charge of nationalism. What he is trying to bring out, however, is that capitalism, if it wishes to preserve itself, must take a stand for national economy, with internationalism extending only to the point of an even exchange of goods. To quote:

> The case of the people against capital exports rests on an analysis of the visible results for public welfare of a prolonged and excessive use of a gambling institution, namely, credit. This book has held that international trade must be conducted only on a better basis—goods for goods—and that money income must always, without need for borrowing, equal money outgo, if a stable and satisfactory amount of economic activity is to be maintained and a decent standard of living is to be enjoyed by the people.

Mr. Dennis supports a contention that even an 85 per cent increase of taxes in this country would not only relieve unemployment and raise living standards but bring a return to those from whom the tax would largely be secured.

Too many fields are here discussed to make an adequate review possible. It can be safely said, however, that the point of view of the book and the honesty and fearlessness with which it is set forth are worth the attention of all those interested in ways out of the present situation.

HELEN A. CARNES[1]

Pathways Back to Prosperity. By Charles Whiting Baker, Funk & Wagnalls Company, New York and London, 1932, pages xix, 351. (No index)

The thesis is well described in the title. Certainly no trails are blazed and every "pathway" is one that quite respectable feet have trodden before. It is a good "safe" book, splendid, readable type and a clean-cut, easy style. Its merit lies in the fact that it is a readable and popular treatment of the subject.

The chief pathways recommended are: (1) The price of capital should be kept low; (2) consumption must be increased; (3) those with spare money should buy bonds or stocks or make loans rather than spend all the surplus; (4) the Chamber of Commerce in each city should have a board which examines ideas for new enterprises and endorses good ones; (5) the going rates of labor should be paid rather than to consider labor as a commodity—i.e., the Clayton Act must be enforced; (6) State control of unemployment insurance should be put into effect; (7) public ownership of natural resources, including land, is recommended by implication; (8) industries and populations must be transferred from the large centers to the country towns; (9) some better means of organizing our banking system which will lessen the risk of bank failures must be found; (10) the consumer must be protected by some kind of organized educational effort; (11) sales taxes must be levied on luxuries.

Mr. Baker seems to feel the plight of the unemployed while he writes about them, but this emotion does not appear to drive him to defend these pathways with any compelling conviction.

FRANCIS GOODELL[2]

Principles of Business. By Charles W. Gerstenberg, Prentice-Hall, Inc., New York, 1931, pages xviii, 809. (Fifth Edition—Revised)

The present volume is a complete revision of the text which was originally published in 1918 and revised in three subsequent editions. The essential character of the book remains the same, but the material has been added to and brought up-to-date. Much of the material in the first five chapters of the original text has been omitted and in its place is given a short statement of the history of business and present-day trends under the heading, "What is Business?" The change is a marked improvement.

Two new subjects, insurance and investments, have been included in separate chapters. Both subjects should be of pertinent interest particularly at this time of uncertainty regarding the future. In short simple sentences the author discusses the need for insurance and briefly describes the more common types of insurance and the protection provided by them. In the chapter on investments the author explains the purposes of investments, the relationship between yield and risk, the value of securities as collateral and their marketability. An investment plan is outlined for the business man and he is given suggestions as to when to invest and where to get investment information.

The student and the business man will both find much of interest and help in this book.

WILLIAM B. CORNELL[3]

Economic Control of Quality of Manufactured Product. By W. A. Shewhart, Ph.D., D. Van Nostrand Company, Inc., New York, 1931, pages xiv, 501.

This book should be welcomed by industrial engineers, particularly those who are immediately concerned with the control of industrial processes and products, in large-scale manufacturing. It is a thoroughly scientific approach to the solution of problems incident to the control of the quality of product. Dr. Shewhart presents his solution for these problems from a fundamental and theoretical point of view. His theory is a most conclusive argument for a new method of attack on quality-control problems based upon a new meaning of control. He has presented a substitute for judgment and intuition. His method is to approach the problem from the statistical angle based upon scientifically correlated data and the considerations of probability. From such an analysis can be obtained scientific data to indicate when control is absent, how to specify standard quality and what degree of control is economical.

The physical practice of product control has progressed empirically more rapidly than its scientific or theoretical concepts. In the words of the author, "This book is the natural outgrowth of an investigation started some six years ago to develop a scientific basis for attaining economic control of quality of manufactured product." After a study of the record of progress presented in the text one must agree with

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